

## **EXHIBIT 20**



June 14, 2011

Federal Trade Commission  
Office of the Secretary  
Room H-113 (Annex X)  
600 Pennsylvania Avenue  
Washington, DC 20580

Re: Patent Standards Workshop, Project No. P11-1204

Dear Commissioners and FTC executive staff:

Microsoft appreciates the opportunity to provide comments in response to the Request for Comments and Announcement of Workshop on Standards-Setting Issues regarding ~~“patent hold-up”~~ in connection with standardization efforts.

At their most fundamental, technical standards are tools that promote efficiency and innovation by making it easier to create products and services that work together—or ~~“interoperate”~~—better. This is especially true in the information and communications technology (ICT) environment. With new ICT solutions and services appearing in the market almost daily, often connected to one another by the Internet or other networks, interoperability has become a market imperative. The development and implementation of standards is one of the ways in which the technology industry is able to meet consumer demand for interoperability.<sup>1</sup> By helping to enhance interoperability among products or services within a market, and being responsive to real marketplace needs, standards can help promote innovation, fuel market growth, and protect investments in new technologies.

Microsoft plays a dual role in standardization activities. First, we actively contribute innovative technology to standardization related to computing hardware, software and associated devices, the Internet and its infrastructure, consumer electronics devices, and telecommunications systems. Second, we are an active implementer of standards. Microsoft supports a very large number of standards that are formulated by a broad diversity of standards-setting organizations (SSOs) in our products. For example, Microsoft’s Windows 7 operating

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<sup>1</sup> Microsoft’s commitment to standardization to help further interoperability is reflected in our Interoperability Principles, available at <http://www.microsoft.com/interop/principles/default.aspx>. Additional information about Microsoft’s standards policies and activities can be found at: <http://www.microsoft.com/standards/>.

system supports more than sixty industry standards (by a conservative count).<sup>2</sup> Ultimately, both of these roles are deeply informed by the market, and in particular by feedback on the way customers use ICT products and services in their day-to-day lives.

Because of this dual role as contributor and implementer, Microsoft takes a balanced approach to standards development and related intellectual property rights (IPR) issues. We understand the particular needs and concerns of those contributing time, resources, and innovative technologies to the development of standards, but we are equally sensitive to the needs of those who are implementing the resulting standards in their products and services. Patents are of particular concern to Microsoft because Microsoft is perhaps the No. 1 target of patent infringement actions in the ICT industry (given the breadth of its product portfolio and large revenue). Our involvement on both sides of the standards fence frames our perspective that a diverse standards ecosystem that supports multiple technologies is good for the U.S. and global economies.

Our comments in response to the RFC can be summarized as follows:

- Microsoft strongly supports President Obama's focus on technology and the promotion of innovation. In looking at issues relating to the inclusion of IPR (primarily patent rights) in standards, it is critical to preserve and cultivate incentives to innovate. In addition, the United States should promote respect for the value of IPR on a global basis, including the IPR reflected in standards.
- Government should take an inclusive view of SSOs' diverse IPR policies and not promote one approach over the other.
- Concerns about "patent hold-up" should not extend to any bi-lateral business disagreement between two companies regarding proposed licensing terms. These discussions typically pertain to a broader set of questions than just the proposed licensing terms for essential patent claims reading on a standard. In addition, if

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<sup>2</sup> A typical personal computer running Windows 7 will support more than 200 additional standards, facilitating compatibility among hardware components from various vendors and promoting interoperability between PCs and other computers. These standards were developed by a broad range of SSOs with diverse processes and IPR policy approaches (including those that seek commitments to offer patent licenses on reasonable and non-discriminatory terms and conditions, whether with compensation or on a royalty-free basis).

the Government were to attempt to quasi-regulate RAND licensing terms, then they arguably should review the inter-play among all of the substantive terms (and not just the monetary component) for all aspects of patent licensing terms. Yet that would likely be unworkable.

- Disclosure-based IPR policies help provide useful information as to which patent holders likely will have essential patent claims vis-à-vis the final standard, which enables parties to make an informed decision whether to engage in patent licensing negotiations and the scope of such discussions.
  - However, it is not possible for an SSO technical committee to have full and complete information regarding the patent rights implicated by a draft standard, especially those rights held by non-participants in the process. IPR policies ideally should take a balanced approach that does not unduly burden patent holders and encourages them to participate and contribute innovative technology.
- RAND-based IPR policies provide a flexible framework to help enable customized bi-lateral negotiations for patent licenses that generally are not limited to just the essential patent claims in connection with a standard.
- While almost all of the ICT industry stakeholders support policies that permit the voluntary and unilateral “~~ex~~ ante” disclosure of specific licensing terms by a patent holder, proposals for the U.S. Government to promote a mandatory “~~ex~~ ante” IPR policy approach or promote the group discussion of proffered licensing terms are not widely supported because such an approach is viewed as:
  - being of little value,
  - creating many practical inefficiencies and possible legal challenges, and
  - something that could be used internationally to undermine the value of patented technology that is included in standards used in other countries.

**In looking at issues relating to the inclusion of intellectual property in standards, it is critical to ensure that incentives to innovate are preserved.**

We strongly support President Obama and his Administration's focus on technology and the promotion of innovation. Innovation historically has been a catalyst for economic growth and the creation of jobs. The United States, in recognizing the need to preserve incentives for innovation through a healthy patent system and marketplace competition, has been and remains a global technology leader. It is therefore important to ensure that the treatment of patented technology in standards does not undermine incentives to continue to invest in new innovation in standardized technology areas.

As the Antitrust Division of the U.S. Department of Justice has observed:

~~The goal of policies involving IP, licensing, and standards should be to promote efficiency, just as it is with antitrust policy. . . . Static efficiency occurs when firms compete within an existing technology to streamline their methods, cut costs, and drive the price of a product embodying that technology down to something close to the cost of unit production. Static efficiency is a powerful force for increasing consumer welfare, but an even greater driver of consumer welfare is dynamic efficiency, which results from entirely new ways of doing business. Economists now recognize that the gains from dynamic efficiency, also called "leapfrog" competition, can far outstrip the gains from incremental static improvements.~~ It follows that policymakers should pay particular attention to the impact of laws and enforcement decisions on dynamic efficiency."<sup>3</sup>  
(Emphasis added.)

In developing policy positions relating to standards, governments should pay special attention to the importance of promoting the dynamic efficiencies that arise from preserving incentives for innovation. Through balanced IPR policies that help make innovative technology available to implementers on reasonable terms, and that do not undercut the value of patented

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<sup>3</sup> See Gerald F. Masoudi, Deputy Assistant Attorney Gen., Antitrust Div., U.S. Dep't of Justice, Address at the High-Level Workshop on Standardization, IP Licensing, and Antitrust, Tilburg Law & Economic Center, Tilburg University: Efficiency in Analysis of Antitrust, Standard Setting, and Intellectual Property 2-3 (Jan. 18, 2007), available at <http://www.justice.gov/atr/public/speeches/220972.pdf>.

technology or overly burden patent holders, standards can help to catalyze innovation by encouraging companies to contribute their innovative technology to collaborative standards-setting activities and to share their intellectual property with others via the standardization process. Standards will not fulfill their salutary purposes if standards policies deter innovators from contributing patented technologies or investing in further innovation related to standardized technology.

In addition, the United States Government should continue to advocate for the fair treatment of patented technology in standards on a global basis.

**Government should take an inclusive view towards SSOs' diverse IPR policies and not promote one approach over another.**

Most SSOs have an IPR (or patent) policy that seeks to balance the rights and interests of their stakeholders by seeking commitments from participating patent holders that they will offer patent licenses for their essential patent claims on reasonable and non-discriminatory (RAND) terms and conditions. Currently there is significant diversity with regard to how, and the detail with which, these policies are articulated by various SSOs. This diversity is healthy and should be encouraged, and any articulation by the government of one or more preferred approaches should be avoided. This diversity and breadth of SSOs has emerged as a result of market forces in response to varying business needs, and provides for flexibility, competition and choice. No one SSO or standardization process necessarily produces —better” standards; the test of success and relevance of a standard is the extent to which it ultimately gets used in the marketplace. This view is widely supported by the ICT industry.<sup>4</sup>

The FTC should encourage SSOs to ensure that their IPR policies are clearly worded, publicly available, and easy to find. Although many SSOs make their IPR policies easily available to the public on their websites, others make them difficult to find or available only to their members. In addition, we support FTC efforts to encourage SSOs to make any patent

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<sup>4</sup> See, e.g., Comments submitted by the Information Technology Industry Council in response to a recent NIST Request for Information (“ITI encourages the US Government to embrace a variety of ICT standards and standards-setting processes, and avoid policy decisions that might discourage a broad diversity of approaches to ICT standardization. This diversity provides for choice, competition and flexibility that further enable the ICT sector to respond to a rapidly changing marketplace with new, innovative solutions.”) ([http://standards.gov/standards\\_gov/mastercomments030711.cfm](http://standards.gov/standards_gov/mastercomments030711.cfm)).

declarations, letters of assurance, or other licensing information they receive from patent holders easily available to the public on their websites. The information contained in IPR policies, and, if applicable, patent declarations, letters of assurance, or other licensing information is important to all stakeholders in the ICT industry, including current and potential SSO participants and standards implementers.

**The concept of “patent hold-up” should map to marketplace realities.**

The notion that “patent hold-up” is a substantial problem that should be addressed by government action seems to stem from a largely theoretical analysis of the situation. If a patent holder can charge implementers more than a reasonable royalty because those implementers are (perhaps) “locked into” the standard, then is it not likely that it would take advantage of this opportunity?

We believe that this reasoning greatly over-simplifies—and obscures—the realities of standards-related patent licensing. How any individual company will approach patent licensing will depend on many factors, such as:

- What is the company’s primary business model implicated by the relevant standard? Is it likely that the company will proactively seek patent licenses (either as a licensor, a licensee or both)?
- Who are the likely companies holding essential patent claims, and what are their business models, products and patent portfolios?
- What licensing or other agreements are already in place between the parties?
- If the parties decide to enter into an agreement, then what are all of the issues (including all of the IPR-related issues) that likely will be negotiated?
- Are there trade-offs that may be made with regard to royalty payments or other financial terms?
  - For example, there are companies who sometimes are willing to offer their essential patent claims to a particular standard free of charge, but they also include a defensive suspension clause that causes the free license in connection with these patent claims to terminate if the licensee commences litigation against the licensor on any grounds whatsoever.

As a result, we respectfully suggest that a simplified and theoretical approach to defining ~~“patent hold-up”~~ may not sufficiently map to complex marketplace realities. It may pull in what are essentially routine business negotiations between two parties. These negotiations almost always include considerations beyond the proposed licensing terms for just the essential claims in a standard (and just the royalty element of any such terms). Many companies question whether these types of business negotiations should be labeled as ~~“patent hold-up”~~ and scrutinized by regulators. We believe that there is an important difference between intentional or deceptive conduct in connection with patents that read on standards and routine bilateral disagreements over licensing terms for the use of patented technology.

In the former context, there seems to be a dearth of examples of actual patent hold-up with regard to the essential patent claims reading on a standard. Microsoft has never been accused of patent hold-up in this regard, nor has it accused any other company of such behavior. This is not to say that Microsoft has never been a party to litigation where the parties disagree whether proffered licensing terms were consistent with the relevant patent licensing commitment (such as RAND). When companies have such bilateral disagreements, it may make sense for them to seek resolution in the courts. But such litigation is rarely limited to the proposed licensing terms for just the essential claims reading on a standard; typically such litigation is addressing other patent-related issues or even other business terms that the parties have been unable to reach agreement on.

Depending on their applicable business model, many companies largely use their patents vis-à-vis standards defensively. Far from seeking to “hold up” implementers, these firms will not seek patent royalties at all in the ordinary course of business. Rather, they will seek a patent license from an implementer only when that implementer has first challenged them on other patent infringement issues.

In addition, it is important to consider the healthy competition among different business models and how that influences debates regarding ~~“patent hold-up”~~ and whether there is a need to impose further restrictions on patent holders. Some companies are largely innovators who predictably will seek a return on their investments in innovation through licensing their patents. Some product-based companies take a more nuanced position, often using their patents vis-à-vis standards defensively (as described above). Still others have a significant consulting or



integration services focus, and they may benefit from having access to others' innovative technology in standards at a reduced cost if not for free. The current RAND-based structure balances these different interests. Proponents seeking to tilt that balance may largely be seeking reduced licensing costs and a related competitive advantage as opposed to solving a documented and widespread problem.<sup>5</sup>

**Disclosure-based IPR policies provide useful information regarding likely holders of essential patent claims.**

There are hundreds of different SSO IPR policies and they vary significantly. As a general matter, the IPR policies of most formal SSOs and many consortia are "disclosure-based". Under these types of IPR policies, participating companies generally are required (or encouraged) to disclose either (a) patents they hold that are likely to contain patent claims that will be essential to implementing the final standard, or (b) the fact that they likely hold such patents (but without identifying specific patents). The disclosing participant is then typically requested to declare its intention with regard to licensing such essential claims (such as RAND, RAND without a royalty, or "will not agree to offer RAND licenses"). If specific patents were

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<sup>5</sup> See remarks by Keith Mallinson (a long-standing research analyst and consultant in the telecommunications industry) at <http://ipfinance.blogspot.com/2011/05/fruits-of-labour-not-windfall-gains-in.html>: "Regulatory price-setting in the arena of innovative technologies neither reflects the market reality of commercial negotiation nor is it related to the costs, efforts and technical or commercial risks involved in developing those technologies. Defining (F)RAND [fair, reasonable and non-discriminatory] according to an imposed pricing structure would severely limit the ability of licensors and licensees to negotiate bilateral commercial terms that reflect their respective positions and needs...."

Further, minimizing the cost of licensed technologies may not result in a minimum cost solution. In addition to providing higher performance and improved features, incorporating patented IP into a standard may actually reduce the cost of implementing the standard. For example, patented IP might reduce the total cost of ownership to the end consumer of a product such as a mobile phone – including phone acquisition costs (with costs of design, development, bill of materials and assembly) and network service charges (reflecting costs of bandwidth acquisition, network equipment, operations, and maintenance). The impact of such cost reductions may far exceed any additional costs in licensing fees. Market forces are best at determining the value to be attributed to any input component in such a system, including technology licences. Regulators should be careful to avoid favouring particular business models or making decisions on which part of the value chain deserves to make the greater profit, especially where dynamic innovation is concerned....

The principle of (F)RAND licensing has been broadly adopted to ensure that patent owners who contribute technology to standards agree to make licences available to their standards-essential IP to all comers on terms that are reasonable and free from unfair discrimination, while maintaining the ability to achieve adequate reward for their innovations. There will at times be significant contention between the patent owner and implementer about what constitutes reasonable licensing terms, but this is to be expected as with commercial negotiation on any input cost component and has, for the most part, been readily resolved through bilateral negotiations. In the rare instances where such negotiations have not been successful, contract law is applicable to the (F)RAND commitment and the courts are able to deal with such disputes...."

disclosed, then the licensing commitment will apply only to any claims in the identified patents that end up being essential vis-à-vis the final version of the standard. In the case of a patent holder disclosing more generally that it likely will have essential claims, the licensing commitment generally will apply to any and all essential claims the patent holder has vis-à-vis the final standard.

A large number of SSOs, including ISO/IEC/ITU, CEN/CENELEC, ETSI, AFNOR, Ecma International, OMG (Object Management Group), PWG (Printer Working Group), TTA (Telecommunications Technology Association of Korea), TTC (Telecommunication Technology Committee in Japan) and ANSI-accredited SSOs (such as the IEEE, TIA, ATIS and ASTM), have some form of disclosure-based IPR policy.

Some SSOs have adopted “participation-based” IPR policies. Under this type of IPR policy, a participating company undertakes a RAND (with or without a royalty) licensing commitment for any essential claims it may have vis-à-vis the final standard just by joining the SSO or by joining a technical committee of the SSO. Standardization efforts under a participation-based IPR policy typically are scoped very narrowly. They also often include safeguards for participants to opt out or exclude certain essential claims by disclosing the patents containing those essential claims and stating that the automatic commitment will not apply to them. This provides some protection to participating patent holders in the event a competitor contributes their technology to the standardization effort, either inadvertently or in an effort to obtain access to such technology under the relevant IPR policy framework.

With “participation-based” IPR policies, sometimes the automatic commitments are RAND-RF (free of charge but with other RAND terms), as was the case with the popular USB standard and the W3C standards. Some examples of SSOs that use a participation-based approach are Bluetooth SIG, GSI, BIAN (Banking Industry Architecture Network), DVB, Infiniband Association, MIPI Alliance, SD Card Association, Serial ATA International Organization, SIGIS, WiFi Alliance, WiMAX Forum and the W3C.

Typically, because SSOs want to encourage disclosures as early as possible during the development of a standard, disclosure is not limited to just known essential claims because those claims can only be accurately identified when the standard is almost final and the draft text is stable. So there often is a trade-off in terms of getting more information early on in the process

(recognizing that some portion of it likely will end up not being relevant), as opposed to having most (if not all) of the disclosed information be accurate and directly applicable to the final standard.

In some ways, the value of a disclosure-based policy is finding out which patent holders likely will have essential patent claims vis-à-vis the final standard. Companies then typically consider that information in the context of its affected product(s) and make decisions, including whether to approach any of those patent holders to discuss licensing terms. What they decide to do depends on a number of different factors, such as whether the parties have existing agreements that may be applicable, the patent portfolio positioning between the parties (which is not a consideration based on just the total number of patents but more likely focused on whether they have patents that read on the other's products, and which products), the companies' applicable business models (which may suggest whether or not the patent holder will proactively seek a license from implementers) and past experiences with each other. In addition, these considerations will of necessity include patents that go beyond just the essential patent claims relating to a standard. If an implementer is going to enter into a license agreement with the disclosing patent holder, such implementer will want to protect its entire product(s) and will need to consider a broader (and perhaps cross-) licensing arrangement.

The RFC also seeks feedback with regard to the fact that most disclosure-based policies do not require participating patent holders to conduct patent searches, nor do they bind non-participants.

As a practical matter, a requirement to conduct patent searches would be a strong disincentive for patent holders to participate in standards-setting activities and contribute their technology so that it can be used by others. Many U.S.-based firms have hundreds of employees participating in hundreds of different SSO engagements, and thousands of patents in their portfolios. The cost and resources needed to conduct multiple patent searches vis-à-vis a developing standard spread across a significant number of standards engagements would be very significant.<sup>6</sup>

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<sup>6</sup> Assessing whether a single patent reads on a particular version of a draft standard could cost tens of thousands of dollars. If patent searches were required in order for patent holders to make definitive disclosures, then there would be a need to conduct several such searches in connection with a single draft standard as it evolves. Multiply that by hundreds of potential standards and the ongoing costs becomes prohibitive.

This is why the ICT industry sought clarification from the FTC in connection with the *Dell* consent decree.<sup>7</sup> The FTC clarified that the consent decree was not intended to support a “disclose it or lose it” approach to patent disclosures in the standards context and that Dell’s failure to disclose was “not inadvertent”. Similarly, back in the early 1990’s the European Telecommunications Standards Institute (ETSI) proposed an IPR policy pursuant to which a patent holder’s failure to make timely and complete disclosures would result in arguably compulsory licensing on ETSI-sanctioned terms (which were perceived to permit very low royalties). Working with U.S.-based trade associations, the U.S. Government intervened and the ETSI policy was modified to be more consistent with other disclosure-based SSO policies.

It is difficult to envision how an SSO IPR policy would apply to non-participants. It is estimated that there are at least 1,000 ICT SSOs around the world. Any absolute disclosure policy would create a huge burden on ICT companies to police all of those developing standards, conduct interminable patent searches, and make definitive disclosures or risk losing valuable patent rights. When the Standardization Administration of China (SAC) released its draft *Interim Provisions on Formulation and Revision of Patent-related National Standards* for public comment on November 2, 2009, a number of U.S.-based trade associations provided comments seeking clarification that the proposed IPR policy would only cover those patent holders who were participating in the development of the relevant Chinese National Standard (and, for example, not patent holders who may have made a licensing commitment in connection with an ISO/IEC-related standard being modified during the Chinese standardization process).

There rarely will be a complete and accurate portrait of the patents that contain essential claims with regard to a particular draft standard. This is not surprising. Standards are often lengthy technical documents. Many of the essential patents are not included as the result of a formal contribution or a technology “take off” pursuant to which the technical committee makes a decision among competing patented technologies. Engineers create a technical document that, not surprisingly, affects a range of patented technology. That said, there still seems to be only limited patent infringement litigation based solely on essential patent claims vis-à-vis a standard where the essential patents were unknown to the participants at the time the participants selected among competing proposals to include in the standard. And those cases, although very limited in

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<sup>7</sup> *In re Dell Computer Corp.*, 121 F.T.C. 616 (May 20, 1996).

number, typically have involved allegations that the patent owner intentionally failed to disclose its patents in violation of the applicable SSO IPR policy.

**RAND licensing commitments provide a balanced and flexible approach to patent licensing.**

RAND is a time-tested and effective approach to licensing commitments. Like other “reasonableness” standards, it does not dictate specific licensing terms, but it does provide flexibility across a diverse range of situations. As mentioned above, companies make decisions about whether to initiate licensing discussions and, if so, what considerations beyond just the essential claims vis-à-vis the final standard will be included. The negotiation associated with a standards-related patent license typically is no different from any general patent licensing discussion and will involve trade-offs on all of the terms and conditions.

While there is no exhaustive list of traditional RAND licensing terms, in addition to a possible compensation element, such terms may include a field-of-use restriction, reciprocity, non-sublicenseability, defensive suspension and other common patent licensing considerations. Whether specific articulations of these types of terms are RAND can be a matter of some debate. For example, if a standard acquires market power (most don’t), a patent owner who requires broad grant backs in the form of reciprocity or broad defensive termination provisions in exchange for its license of essential patent claims to implement such standard arguably may not be offering a RAND license. With regard to defensive termination, if the standard has market power and if the “trigger” for suspension is much broader than the actual license grant, it is not clear that the term is RAND. For example, if the defensive suspension is triggered by the implementer asserting any type of IPR against the patent holder (or even any litigation claim on any topic), then arguably the patent holder is receiving a free-of-charge cross-license to the implementer’s entire IPR portfolio in exchange for a license to just the patent holder’s essential claims vis-à-vis a standard. As with other “reasonableness” tests, these and other questions can be resolved through litigation in the relatively rare circumstances where business discussions fail (and the risks for each side inherent in such litigation of course inform the business discussions).

Proposals to somehow reduce “RAND” to some uniform formula could undermine the value of current practices and restrict some of the flexibility that helps to enable current licensing practices and protect the defensive value of contributed patent technology. There are many

existing patent licenses that include access to essential patent claims vis-à-vis one or more standards that reflect a customized solution between the two parties that takes into consideration all of the licensing terms (and not just the financial component).

In addition, the existence of a RAND commitment to offer patent licenses should not preclude a patent holder from seeking preliminary injunctive relief or commencing an action in the International Trade Commission just because the patent holder has made a licensing commitment to offer RAND-based licenses in connection with a standard. Whether such relief is available should be assessed under the current legal framework in the applicable jurisdiction, which often is premised substantially on the specific facts and circumstances at issue. Any uniform declaration that such relief would not be available if the patent holder has made a commitment to offer a RAND license for its essential patent claims in connection with a standard may reduce any incentives that implementers might have to engage in good faith negotiations with the patent holder.

With regard to the issue whether the licensing commitment should be binding on the successor-in-interest of the implicated patent rights, we believe that there is a fairly broad consensus that this outcome would be ideal. The issue is how to effectuate this in practice. If a patent holder makes a specific patent disclosure to a SSO, then it should be able to track that commitment and bind the transferee as part of the transfer agreement.

This becomes more challenging when the patent holder has made a more general licensing commitment that it will license any essential claims that it has (and when the patent holder has made such general commitments to many SSOs). In order to bind a transferee, such patent holder would have to conduct patent searches to determine what patent claims were implicated by the commitment(s). Many patent holders that use their patents largely for defensive purposes vis-à-vis standards do not want to undertake this significant expense. This is especially true when the patent holder has made a commitment to license on RAND terms on a royalty-free (or compensation-free) basis. If such patent holders are required to conduct patent searches to determine what they are giving away for free, then they may be less willing to agree to a RAND-RF licensing commitment. We believe that SSOs should seek to help address this issue in their IPR policy, but it is not realistic to expect that they alone can fully solve this issue.



**Proposals for the U.S. Government to promote a mandatory “ex ante” IPR policy approach are not supported by the broader ICT industry because such an approach is viewed as (a) being of little value, (b) creating many practical inefficiencies and possible legal challenges, and (c) something that could be used internationally to possibly undermine the value of patented technology that is included in standards.**

Almost all disclosure-based IPR policies address (a) the extent to which patent holders have to disclose whether they have any patent claims that likely will be essential to implement the standard under development and/or (b) the choices such patent holders have with regard to the licensing commitment they can make vis-à-vis those claims (such as a commitment to license under RAND terms and conditions).

If a patent holder makes a disclosure about its essential patent claims, potential implementers can decide when (or even whether) to contact the patent holder to obtain information about actual license terms. Depending on when the patent holder makes such a patent disclosure, this may occur *ex ante* (before the standard is finalized). Any negotiations typically are conducted bilaterally and outside the SSO.

~~Ex ante~~” IPR policies typically refers to those disclosure-based policies that either permit or require patent holders to disclose specific licensing terms, including royalty rates, to the standards body before the standard is finalized. While almost all ICT industry stakeholders (including Microsoft) support policies that permit the voluntary and unilateral ~~ex ante~~” disclosure of specific licensing terms by a patent holder, there are differing views with regard to proposed IPR policies that would mandate the ~~ex ante~~” disclosure of specific licensing terms and/or permit group discussions of those terms. Advocates of mandatory ~~ex ante~~” IPR policies argue that this is necessary to prevent patent holders from ~~holding up~~” implementers and extracting onerous terms after the standard is completed and everyone is attempting to implement the standard as written. Opponents highlight that ~~patent hold-up~~” occurs rarely when viewed across thousands of ICT standards, and such policies would unduly burden the standardization process and create many unnecessary practical inefficiencies and potential legal problems.

There are literally thousands of ICT standards in existence today. Hundreds of these standards have been referenced in eGovernment Interoperability Frameworks,<sup>8</sup> with no apparent documented problems relating to IPR issues.<sup>9</sup> There have been a relatively small number of noteworthy litigations that have been commenced when two parties have been unable to agree on whether proffered licensing terms were RAND and/or otherwise met the requirements of the applicable SSO's IPR policy. These are very much the exception, not the rule. Most SSOs review and regularly update their IPR policy to address broad issues, but they often are reluctant to add substantial burdens to the process to address relatively rare, potential "one-off" disputes that are fact-specific and can be litigated if the two parties cannot come to an agreement.

The debate over mandatory "ex ante" IPR policies has been underway for more than a decade. During this time, many ICT SSOs and their members with disclosure-based IPR policy approaches have thoughtfully considered whether to adopt such a policy, and with the exception of the VITA standards body, they largely have rejected adopting such an approach. The principle reasons typically include the following considerations:

- A mandatory "ex ante" IPR policy would require patent holders to disclose proposed licensing terms for their essential patent claims. Most stakeholders have observed that, for various reasons, such a disclosure is of little practical value. When a patent holder discloses to a SSO that it likely holds essential patent claims, a prospective implementer makes a decision whether to approach this patent holder to discuss possible licensing terms (and that decision is dependent on a number of factors). Any implementer actually deciding to negotiate a license will rarely, if ever, want a license for just the patent holder's essential patent claims in connection with that standard. An implementer seeking a license likely will want to negotiate a bi-lateral, customized agreement that will include other IPR (including related patent claims that it may be infringing) that impact its entire product or at least those product features that relate to and utilize the standard. The license also likely will reflect a range of possible trade-offs between the two parties based on their respective IPR portfolios and other business

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<sup>8</sup> See "eGovernment Interoperability: A comparative analysis of 30 countries" by CStranform at [http://www.cstranform.com/white\\_papers/InteropAnalysisV2.0.pdf](http://www.cstranform.com/white_papers/InteropAnalysisV2.0.pdf).

<sup>9</sup> The existence of competing standards also can help reduce the threat of possible patent "hold up".



opportunities. So adding a requirement to an SSO IPR policy to the effect that disclosing patent holders must prepare and submit licensing terms for just its essential patent claims creates an obligation and burden on patent holders that arguably adds little or no value to the standardization process.

- Standards technical committees make hundreds of technical decisions and, as has been much noted, the process is often lengthy. Experienced stakeholders have noted that injecting licensing terms into the standardization process will inevitably delay the process further still without improving the technical value of the standard.
- Some patent holders make RAND licensing commitments largely for defensive purposes to further their own freedom of action, such as seeking to protect their products that implement standards from patent infringement claims asserted by others. As a result, quite often they will not proactively seek to obtain licenses from implementers. It has been observed during stakeholder debates on the “ex ante” issue that requiring these patent holders to prepare patent licensing terms unnecessarily creates burdens and complications for them without adding value to the standardization effort.
- There is little evidence that “patent hold-up” in the standards context is a real problem. Most patent holders also are implementers, whether with regard to the same standard or in terms of the broader ICT standards landscape, and thus share an interest in maintaining reasonable royalty rates. This ecosystem generates few IPR-related disputes as a result.
- Under a mandatory “ex ante” IPR policy, there is a substantial risk—even a likelihood—of buyer cartel or group boycott behavior. An SSO obviously is a forum for participants to discuss the development of technical standards. Those discussions are likely to extend to price if price terms are disclosed in connection with the offer of technology to a standard-setting effort. The technical committee members may explicitly or implicitly pressure a disclosing patent holder to modify its proposed licensing terms or risk not having its technology included in the standard. This is especially true if the IPR policy permits the group discussion of proposed licensing terms as part of the standardization process. For this reason, mandatory “ex ante” IPR

policy approaches also may discourage key patent holders from participating in the process and contributing their valuable patented technology. They also could create disincentives to invest further in innovation in that technology area.

Most of the SSOs and their stakeholders that have considered these proposals over the years have determined that there are only a limited number of situations where ~~“patent hold-up”~~ takes place in the context of standards-setting. The industry has determined that those situations generally are best addressed through bi-lateral negotiation (and, in rare cases, litigation) as opposed to modifying the SSO’s IPR policy and arguably unnecessarily burdening the standardization process for the many ICT standards that are being widely implemented in the marketplace with no apparent IPR-related challenges.

Accordingly, we support the majority of ICT companies who believe that SSOs should develop their IPR policies based on a consensus of their stakeholders, and that governments should not promote one approach over another, including a mandatory ~~“ex ante”~~ IPR policy regime and the group discussion of proposed licensing terms.

In conclusion, we thank you for the opportunity to provide comments in response to the RFC.

Respectfully submitted,  
Microsoft Corporation

David Heiner  
Vice President and Deputy General Counsel

Amy Marasco  
General Manager, Standards Strategy and Policy

## **EXHIBIT 21**

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TOOLS TO PREVENT PATENT "HOLD-UP"

Tuesday, June 21, 2011

9:30 a.m.

Federal Trade Commission  
Conference Center  
601 New Jersey Avenue, NW  
Washington, D.C. 20001

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1 P R O C E E D I N G S

2 - - - - -

3 MR. ROACH: Hello everyone. I want to thank  
4 everyone for coming. I'm delighted to see the folks that  
5 are here, the interest in the issues today. I must say  
6 the welcome, of course, is to the FTC Workshop on  
7 Intellectual Property Rights and Standard Setting, the  
8 one we've called Tools to Prevent Patent Hold-up.

9 And I am delighted to see the interest among  
10 the folks who are here today, and I am very, very  
11 grateful to our panelists, to our crew of panelists, who  
12 have come and given us their time to be here today to  
13 talk about these issues, and some of them have traveled  
14 from quite some distance to be here.

15 I have a few housekeeping details I'm compelled  
16 to pass on. I'm Pat Roach from the Office of Policy  
17 Planning, by the way, at the FTC. And, so, if you'll  
18 have the patience to bear with me, several little items  
19 to take care of, one of them that is -- may be important  
20 around lunchtime is that anyone who goes outside of the  
21 building without the FTC badge, or even with the  
22 unofficial badge, when you come back into the building  
23 you are going to be required to go through the machine,  
24 through that screening as you come in, but hold onto your  
25 sticky patches because it will make your life a lot

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1 MS. MICHEL: Michele?

2 MS. HERMAN: I have accumulated a number of  
3 points since my card was up, but I will try not to go  
4 through all of them.

5 You know, to Alexa's point, since that's the  
6 most recent one, I just want to -- you know, again,  
7 that's a legitimate concern, and equally, I was  
8 mentioning this morning the concern I had when, you  
9 know, somebody contacted me on behalf of their client  
10 saying, "Well, you know, we want to get your terms and  
11 conditions, but we're not willing to tell you anything  
12 about our product and our product plans and we're not  
13 going to give you any information," so that you can even  
14 craft a license.

15 MS. KING: The flip side essentially.

16 MS. HERMAN: Yeah. So, again, once again, I am  
17 going to say, you know, these things have to be looked  
18 at in a balanced way, and you have got to look at the  
19 conduct of both the patent owner as well as the  
20 implementer. They both need to be willing to negotiate  
21 in good faith.

22 I wanted to also, you know, talk about -- you  
23 know, again, I actually wanted to talk about, like, a  
24 real-life scenario where, you know, so, many, many, many  
25 years ago, in the DVB, Sun Microsystems had proposed

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1     that the DBB incorporate a number of job specifications  
2     as normative references. So, if you were going to  
3     comply with the DVB standard, you would have to  
4     implement these other specifications. And this was many  
5     years ago, and I was representing Microsoft at the time,  
6     and this is all a matter of public record, and Carter  
7     Eltzroth can step in and correct me if I say anything  
8     out of line, but it's published. It's been published on  
9     the Internet.

10           Basically, Microsoft was very concerned about  
11     this technology. Microsoft was already involved in  
12     litigation with Sun, and because Microsoft was  
13     concerned, Microsoft said, "Gee, Sun, what are your  
14     terms going to be for these specifications?" They  
15     didn't have to disclose patents, because the DVB's  
16     patent policy at the time was only disclose if you're  
17     not willing to license on FRAND terms. So, they didn't  
18     have to disclose anything, but it was no mystery that  
19     they were going to claim IP on all these specifications  
20     that they wanted to normatively reference.

21           So, they came out for terms just for essential  
22     claims, and Microsoft argued that they weren't  
23     reasonable and nondiscriminatory. So, this all took  
24     place ex ante, and it goes to my point of if you care,  
25     if you're concerned, you're going to ask.

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1           Somebody mentioned -- I think it might have been  
2     Sandy -- that, you know, maybe the standards  
3     organizations should get together and should maybe  
4     mediate some of these things. In this case, you know,  
5     it wouldn't have mattered whether or not the DVB stepped  
6     in and took any interest in Microsoft's concerns over  
7     this. They did, they hired somebody to prepare an  
8     opinion as to whether or not these terms and conditions  
9     righted Articles 81 and 82, you know, for antitrust  
10    violations, but it didn't really opine on whether they  
11    were reasonable and nondiscriminatory, and that's what's  
12    published.

13           But my point is, there are examples. We  
14    shouldn't just assume that there's some type of  
15    valuation that you can think of before and after. If  
16    you have concern, you should be there, and you should  
17    be -- and you should be asking about these things. That  
18    doesn't necessarily help new entrants, but, again, even  
19    there, there is an obligation on both parties' parts to  
20    negotiate in good faith, and I think that, you know,  
21    these are important.

22           I also want to touch on -- we have heard it  
23    several times, the royalty-free versus sort of RAND  
24    distinction. I'm just going to mention, in the DVB  
25    case, Sun's terms were royalty-free on their essential

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1 not a business model that has seemed to succeed with  
2 consumers overall, and I think there's a pretty obvious  
3 reason for that, okay?

4 So, in any case, I look forward to hearing a  
5 great deal more about many of these deep questions, and  
6 thank you all for coming.

7 (Applause.)

8 (Whereupon, at 4:45 p.m., the conference was  
9 concluded.)

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## **EXHIBIT 22**

# Negotiating Standards-Related Patent Licenses: How the Deal Is Done part I

## By Michele K. Herman

*This article is Part I of a paper originally presented by the author on April 7, 2010, at the 25th Annual Intellectual Property Law Conference of the ABA Section of Intellectual Property Law in Arlington, Virginia. Part II will be published in the next issue of Landslide, November-December 2010.*

### Introduction

The current voluntary consensus-based standards system is a global system that has adapted with great agility over the years as advancements in technology, technological convergence, shorter product life cycles, and changes in business models have increasingly created the need for standards, particularly interoperability standards. While concerns for safety and security are often reasons for governments to adopt standards, market requirements and opportunities for innovation have largely been the inspiration for the development of voluntary consensus-based standards.

Most voluntary consensus-based standards are developed within a standards-setting organization (SSO) that has an intellectual property policy and, in particular, a patent policy. Patent policies may vary extensively from one SSO to another.<sup>1</sup> The general goal of most SSOs, however, is to avoid developing a standard that cannot be implemented because a participant in the standards development process blocks implementation with its essential patents.<sup>2</sup> Such a situation is often referred to as "patent hold up."<sup>3</sup> While each SSO may approach the goal of avoiding patent hold up with a different policy, most SSOs typically require participants in the standards development process to follow rules concerning patent disclosure and/or patent licensing commitments.

Patent disclosure rules specify when and how a patentee participating in the standards development process should disclose its patents. Rules regarding patent licensing commitments typically refer to situations in which a patentee declares its willingness to offer a license or undertakes a commitment to license particular patents to implementers of the standard on certain terms and conditions, typically on reasonable and nondiscriminatory (RAND) terms and conditions. It is important to note that a willingness or commitment to offer a license on RAND terms and conditions is not an actual license. Negotiations in the market, the primary mechanism intended to establish RAND terms and conditions, are generally left to individual patentees and implementers, and are not conducted within or aided by the SSO. Importantly, by committing to

offer a RAND license, a patentee cannot refuse to negotiate in good faith with implementers of the standard.

The patent claims that are subject to a patent policy are, for the vast majority of SSOs, limited to patent claims that are necessary or essential to the implementation of a standard; in other words, those claims that would necessarily read on an implementation of the standard where there is no technically feasible way to avoid infringement when implementing the requirements of the standard. Definitions of necessary or essential claims, like the disclosure and licensing commitment rules, also vary among SSOs.<sup>4</sup> Some policies may have broad definitions, subjecting more patent rights to the policy, while others may have narrower definitions, subjecting only a limited number of patent claims to the policy. For example, consider the Bluetooth standard.<sup>5</sup> An entity may have a patent claim that recites communicating in a personal area network using the precise protocol set forth in the Bluetooth standard. Such a claim would likely be essential.<sup>6</sup> A claim, however, that recited the display of an icon indicative of the device being Bluetooth-enabled would not likely be essential because such feature would not be called for by the Bluetooth standard even though almost every Bluetooth-capable device might include such an icon on its graphical user interface.<sup>7</sup>

Although there is no specific definition of RAND, it is generally understood that the patentee and licensee will negotiate terms and conditions.<sup>8</sup> However, in theory at least, the parties may be unable to agree upon mutually acceptable terms and conditions even when a RAND policy is in place. Therefore, there is substantial debate over whether or not bilateral negotiations to arrive at RAND terms and conditions are the most effective way to promote the development and adoption of successful standards in all settings without diminishing innovation incentives. A number of solutions have been proposed that differ from the common RAND approach. Like the debate as to whether or not RAND is an effective or workable framework, there is also debate as to whether the proposed solutions will be effective or whether they will create substantial unintended and negative consequences for innovation and standards development and adoption. These debates, however, are unnecessary because most standards-related patents are not licensed in a vacuum; they are licensed in a broader context. Accordingly, the definition of RAND as applied to essential patent claims is not relevant to the vast majority of license negotiations that include these claims.<sup>9</sup>

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### Patent Hold-Up Scenarios

Because a commitment to offer a RAND license is not actually a license and only applies to certain patent claims, many have questioned whether patent policies that include a licensing commitment are effective in preventing patent hold up situations. This may be because the definition of "hold up" itself is subject to debate. In theory, however, there are a number of ways that some have explained how patent hold up situations

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may occur. For example, some have said that a “patent ambush” may occur when an SSO participant intentionally fails to disclose a patent in violation of the relevant patent policy and then, after the standard is commercially adopted, seeks to extract “excessive” royalties (what constitutes “excessive” royalties is another question that has been often debated) from implementers, who are by that time said to be “locked in” to the standard.<sup>10</sup> Another hold up situation that some say may occur is where a patentee offers to license its patents on certain terms and conditions as the standard is being developed, but it or a subsequent owner of the patent refuses to comply with that commitment once the standard is adopted.<sup>11</sup> These situations, if they arise, may involve bad faith conduct of the patentee.

Yet another proposed definition of patent hold up applies where the patentee’s conduct is not at issue. For example, in some situations it is possible that many different patentees will hold patents necessary to implement a standard. Although the license fees charged by each patentee might be reasonable, the cumulative license fees for all patentees may be “commercially prohibitive,” a term that, like hold up itself, is undefined.<sup>12</sup> This situation is known as patent stacking and is not unique to implementations of standards, but may be generally applicable to various technologies.<sup>13</sup> Yet, some may consider this to be an occurrence of hold up. Moreover, a patentee that is not a member of or that has not participated in an SSO’s standards development effort has no obligation to abide by the SSO’s patent policy, but may, nonetheless, hold patents necessary to implement the resulting standard.

#### **Criticism of the RAND Framework**

Some critics argue that RAND is too indefinite and, as a result, an implementer may only learn after it is locked into a standard that a patentee’s view of “reasonable” is very different from its own. They contend that the patented technology might not have been included in the standard if the patent licensing terms had been known before the standard was adopted. Some similarly argue that the cumulative RAND royalties for patented technology incorporated into a standard may turn out to be “excessive” because there are no specific limitations placed on the RAND commitment and no way to gauge in advance of adoption the cumulative amount of royalties to be charged. Opponents of RAND also contend that the increasing number of lawsuits and agency investigations is evidence that the RAND framework does not work well—at least in some contexts.<sup>14</sup>

Because RAND lacks explicit certainty regarding licensing terms, the standards development process, according to those who question RAND, can be significantly harmed by blocking patents creating a general discouragement or wariness for standards adoption. Waiting for a court to answer what the parties to a RAND commitment meant when they used the term “reasonable,” and whether the patentee has abided by that meaning, critics of RAND argue, can be costly and too time-consuming to effectively aid standards implementers.

#### **Support for the RAND Framework**

On the other side, there are those who favor RAND frameworks and reject the argument that RAND is too uncertain and

lacks sufficient transparency. Some proponents of RAND contend that the license terms can be negotiated bilaterally when a patent is disclosed and before the standard is adopted. If the patentee insists on terms and conditions that the implementer does not wish to accept, the latter may vote against adoption of the standard if there is a sufficiently attractive alternative. If enough implementers believe and vote the same, the SSO will select a different technology before anyone is locked into the standard. A standards-related patent license between two parties is no different than any other patent license in that the negotiations will involve a give-and-take on a number of interdependent terms and conditions, not just a royalty rate.<sup>15</sup> Moreover, as will be discussed in Part 2 of this article, few licensees will seek a license of only essential claims and will, in many instances, enter into broader portfolio licenses and cross-licenses that will be unique to each particular patentee and licensee. Some patentees and prospective licensees will not engage in specific patent license negotiations, but will enter into other business transactions in which the relevant patents are expressly licensed or, in some cases, implicitly licensed as part of those business deals. Additionally, many patentees are also implementers of standards and merely wish to maintain their rights to use their patents defensively. Such patentees rarely request that other implementers execute a patent license but reserve the right to do so if they are threatened with a lawsuit.

Proponents of RAND point out that the number of high-profile cases involving standards and patents is small relative to the thousands of standards adopted each year. Moreover, most of the lawsuits have involved alleged patent ambush conduct, where, in (alleged) bad faith, the patentee has failed to disclose a patent to avoid a RAND commitment. Such cases do not generally involve disputes over the terms resulting from a RAND commitment because no RAND commitment was undertaken. In the few instances where disputes over RAND terms and conditions have resulted in litigation, some posit that the courts have been able to appropriately apply the *Georgia Pacific*<sup>16</sup> factors to resolve the dispute.<sup>17</sup>

#### **Proposed Solutions to a Nonexistent Problem**

The debate over RAND has focused many academics, policy makers, and others on finding ways to mitigate the possibility of patent hold up, and in particular on “fixing” the RAND framework, notwithstanding that there is no consensus as to whether the RAND framework is fundamentally flawed. As a result, significant changes to patent policies are being proposed to address one or more potential hold up scenarios. These solutions range from mandatory royalty-free or minimum-fee licensing<sup>18</sup> to disclosure of license terms along with patents, as well as imposition of royalty caps on cumulative royalties. While some strongly favor such solutions and tout their potential benefits, others adamantly believe they will significantly harm the standards system and, more broadly, innovation.<sup>19</sup>

#### **Royalty-Free Policies**

If standards could be developed without patented technology or at the very least with patented technology that is licensed on a royalty-free basis, then, in theory, the risk of hold up would be essentially eliminated. Indeed, some SSOs have adopted



such royalty-free patent policies whereby participants are obligated to license their essential patent claims on royalty-free and otherwise reasonable and nondiscriminatory terms and conditions (RAND-RF).<sup>20</sup> The trade-offs that are made so that patentees will participate under such RAND-RF policies are often significant. For example, the definition of essential patent claims is usually substantially narrowed as compared to patent claims subject to RAND policies. Safeguards, such as lengthy review periods in which participants may opt out of the RAND-RF licensing commitment, are usually built into the standards development process so that participants do not inadvertently subject patent claims to the RAND-RF commitment. Moreover, some participants may refuse to participate altogether under such policies and, consequently, undertake no licensing commitment with regard to the standard. As a result, such policies do little to ensure royalty-free implementation of the standard, and, of equal importance, such policies can result in a multitude of negative unintended consequences.

Delay in developing the standard is one unintended consequence. When patents are disclosed as part of a review process for the specific purpose of opting out of a RAND-RF licensing commitment, standards development is delayed. Protracted discussions with the patentee or time-consuming attempts to design around such patents ensue, both of which raise other legal and business concerns. The process to develop the standard may also be delayed because knowledgeable, but wary, patentees may choose not to participate at all. The skill and expertise of those who have invested in the relevant technology are often needed not only to facilitate the development of the standard, but also to ensure that the standard meets market needs.

When important patentees choose not to participate, there is a risk that innovation in general could be stalled and that no standard will be commercially adopted. If there can be no return on research and development investments made by private entities in connection with standardized technologies, it is reasonable to assume that private entities will invest their capital and other resources on other endeavors. Because some private entities profit from the sale of goods and services that are based on standardized technologies, but not on the sale of products implementing the standardized technologies, it is also reasonable to assume that some small investments will be made by these other entities to develop standardized technologies. But because these other entities' profitability is based on customized, not standardized, goods and services, the proportion of investment in standardized technologies will be relatively small. Consequently, there is a significant concern that standards developed under a RAND-RF policy that is viewed as onerous by patent holders because, among other things, it applies to a broad set of patent claims or because it does not provide adequate safeguards against inadvertent licensing commitments may result in an unsuccessful standard. In addition, patentees who choose to remain outside of the process may develop their own technical solutions, creating multiple competing technologies where standards may enhance consumer welfare as a result of new product or user scenarios, simplified use of technology, or other positive network effects.

While there are many examples of successful standards developed under a RAND-RF policy, these policies are

generally viewed as applying only to the narrowest set of patent claims with many process safeguards for patentees such that unintended licensing commitments can be avoided. The relevant implementations of such standards are, therefore, likely covered by numerous patent rights, i.e., nonessential patent claims, not subject to the RAND-RF license commitment. Nonetheless, there are few, if any, hold up problems based on nonessential patent claims owned by participants. The RAND-RF policy, therefore, cannot be considered a major factor contributing to the lack of hold up situations. As will be discussed in Part 2, the lack of hold up situations is the result of other broader licenses and business transactions that cover the patents relevant to an implementation.

#### **Ex Ante Disclosure of License Terms**

Concerns have been raised that some parties do not negotiate patent licenses *ex ante* and that RAND licensing commitments do not provide sufficient certainty to prospective implementers to enable commercialization of standardized technologies.<sup>21</sup> Consequently, proposals have been made to change certain SSO's patent policies to require that a patentee disclose not only its patents on an *ex ante* basis, but also the specific licensing terms it would be willing to offer prospective licensees. One SSO, VMEbus International Trade Association (VITA), now requires patentees to disclose specific terms or maximum royalties *ex ante*; if patentees do not make this disclosure, they will be required to forgo patent royalties and agree to other predefined licensing terms.<sup>22</sup> Although VITA has prohibited joint negotiations of any disclosed licensing terms in its technical working groups, there remains concern that through coordinated action, prospective licensees will pressure the patentee for more favorable terms to avoid what would amount to a group boycott. While most SSOs are silent on whether a patentee may disclose its licensing terms voluntarily to the SSO (and through the SSO to its members), the Institute of Electrical and Electronics Engineers, Inc. (IEEE) has expressly permitted the voluntary disclosure of terms on an *ex ante* basis.<sup>23</sup> Moreover, a patentee is free, without obtaining the "permission" of the SSO, to disclose unilaterally the license terms it will seek.<sup>24</sup>

#### **Ex Ante Disclosure of Terms for Essential Claims Does Not Enable a More Informed Selection of Alternatives Than Ex Ante Disclosure of Patents**

Proponents of *ex ante* disclosure of license terms argue that early disclosure of terms would permit more informed decisions about which available technical alternatives to include in a standard.<sup>25</sup> They believe that if the SSO members can compare the relative costs of alternatives as well as the technical merits of those alternatives, then the possibility of hold up will be reduced. Those costs, however, cannot be assessed without actually negotiating the bilateral deals between the patentee and each perspective licensee.<sup>26</sup> Moreover, the patent landscape regarding both essential and nonessential patents from all relevant parties for each alternative will not be known.<sup>27</sup> Prospective licensees who plan to commercialize the standardized technology generally do not want a license only to essential claims, but rather to all of the patent claims that their commercial implementations infringe, which can

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be difficult to determine particularly prior to adoption of the standard. Therefore, as discussed below, most patentees will, in practice, accommodate their potential licensees by licensing their essential claims as part of (1) a broader portfolio of patents, (2) a cross-license, or (3) other business transactions that include patent licenses for the licensee's product, not merely standards-essential patent claims.

As a result, the patentee may be asked to develop a special license—one that no one is likely to request—merely to comply with a patent policy requiring the *ex ante* disclosure of license terms. Arguably, the only useful information that is gained from the disclosure of *ex ante* terms for the licensing of essential claims is identifying which patentees should be contacted for a license; this is the same information that is gained from the disclosure of the patent alone without license terms.

#### *Ex Ante Disclosure of Terms for Essential Claims Is Imprecise and May Discourage Participation from Innovators*

There is a significant risk that a patentee that is required to identify its maximum rates will choose an artificially high rate since it must contemplate negotiating bilateral deals with each licensee tailored to the licensee's unique interests. In other words, the patentee may artificially inflate the rate it offers to all knowing that it will likely negotiate down from that maximum rate in individual negotiations. If the rates are deemed by prospective licensees as being too high before they even enter into bilateral negotiations, there is the additional risk that through coordinated action, the prospective licensees will pressure the patentee to forgo royalties or fees altogether or risk losing the opportunity for its patented technology to be included in the standard, even if the technology is superior and provides the best value over alternatives. These "buyer cartel" or "group boycott" types of behaviors may lead to increased litigation regarding whether inappropriate conduct took place during the standard-setting process.<sup>28</sup> Thus, *ex ante* policies that require patentees to disclose license terms may provide no foreseeable benefits to the standards community. Instead, they create many disincentives for innovators that have valuable patented inventions to contribute to the standards development process.

#### *Ex Ante Disclosure of License Terms Increases Both Business and Legal Risks*

There are additional legal and practical risks in requiring the disclosure of license terms to technical working groups during the standardization process. While the mere disclosure of license terms to a group of prospective licensees and other interested parties is unlikely to raise antitrust concerns, the subsequent conduct of those parties in evaluating, discussing, and making decisions based on the disclosure will likely raise antitrust concerns.<sup>29</sup> The pro-competitive benefits of that subsequent conduct will need to be weighed against anticompetitive effects on a case-by-case basis. Thus, an SSO that adopts a policy requiring the *ex ante* disclosure of license terms and the members who participate in such SSOs will need to retain appropriate antitrust counsel as necessary to supervise such conduct—often by technical engineers—following the disclosure of terms.

In addition, technical participants (as opposed to trained

patent counsel) are not generally able to evaluate the scope or validity of patents. Consequently, technical participants are unlikely to be able to assess how or if the disclosed patents relate to each of the various proposed technical alternatives. Instead of avoiding infringement, such technical participants without the benefit of a reasonable claim interpretation could select an alternative that, when implemented, infringes one of the disclosed patents. Thus, decisions of such technical participants could actually heighten the risk of infringement, and in jurisdictions that provide for willful infringement, heighten the risk of willful infringement.

Finally, collective consideration of patent licensing issues may unacceptably delay the standards development process. In the Information and Communications Technology (ICT) sector, in particular, such delays could have a significant impact on innovation because the ICT sector demands an increasingly faster standardization process to satisfy ever shorter product cycles. Because *ex ante* disclosure of license terms may provide no practical or bona fide benefits, but heightens legal risks, slows down the technical standardization process, and creates disincentives for participation in the standards process, it should be avoided.

#### *Ex Ante Disclosure of License Terms Does Not Provide More Transparency Regarding the Licenses That Will Be Negotiated Than Ex Ante Disclosure of Patents*

Notwithstanding that bilateral negotiations are needed between a patentee and each prospective licensee, *ex ante* disclosure of license terms has also been touted as a way to inject transparency and certainty into the standards licensing process. The theory is that early disclosure of license terms will reduce patent hold up situations because the terms will be known before investment is made to adopt and commercialize the standardized technology.<sup>30</sup> However, disclosure of patents ensures that prospective licensees know who to contact to privately negotiate a bilateral license before the standard is approved. Prospective licensees can object to the approval of a standard if they are unable to negotiate mutually acceptable terms with the patentee.

If a participant in the standards process chooses to implement the standard without requesting a license and then is sued for infringement by the patentee that disclosed its patent, that participant should not be able to blame the process for its own failure to seek an early license.<sup>31</sup> As discussed above, a disclosure of maximum rates is not a substitute for negotiations between individual patentees and prospective licensees. Nor is the disclosure of terms for essential claims a substitute for the negotiations of patent rights and terms uniquely required by each licensee. Accordingly, there is no more transparency or certainty<sup>32</sup> under a policy that requires *ex ante* disclosure of terms<sup>33</sup> than there is under a policy that requires *ex ante* disclosure of only patents.

*Ex Ante Disclosure of Terms Does Not Address Patent Ambush* Additionally, there is no difference in the timing of disclosure under a policy that requires *ex ante* disclosure of terms. If a patentee that is participating in the standards activity has knowledge of patents that it should disclose under the relevant SSO patent policy, the patentee will disclose such patents to

the SSO. If the patentee's participants in the SSO are not in good faith aware of such patent, then the patentee that does not disclose is not acting in bad faith. But if a patentee's participants know about a patent that should be disclosed under the SSO policy and intentionally fail to disclose such patent so that the patentee may later require licenses from unsuspecting implementers ("patent ambush"), remedies are justified. The requirement that a patentee disclose its license terms for its essential patent claims in addition to its ownership of the patent containing such essential patent claims will not have any effect on whether or not the patent itself is disclosed. Thus, policies that require *ex ante* disclosure of license terms for patents that are subject to the policy do nothing to mitigate patent hold up resulting from a patent ambush.

### Royalty Caps

Another proposal purported to provide certainty and address patent stacking concerns is to limit the collective or "aggregate" royalty rate that could be charged by all owners of essential patent claims to any licensee. This proposal was introduced in at least one SSO,<sup>34</sup> but it was heavily criticized and, consequently, not adopted. Imposing a collective royalty cap on all patent claims essential to a standard is inherently complicated. There is significant debate not only over who would determine and what would be an appropriate "aggregate" rate, but also how the royalties would be allocated among essential patent holders.<sup>35</sup> Not only would the royalty determination be very complicated, but it could be fraught with gaming that could raise antitrust concerns.<sup>36</sup>

Concerns have also been raised about proposals for mandatory patent pools.<sup>37</sup> The concept of imposing a mandatory "aggregate" royalty cap raises similar concerns. Specifically, patent holders have different business models that they should be able to pursue. Mandatory pooling or mandatory caps would prevent some companies from lawfully licensing their patents in a manner that best suits their business needs. Some high-technology companies and many universities develop valuable patented technologies but do not have a business model that allows them to amortize the costs and return of their R&D across product sales. Other companies, e.g., vertically integrated suppliers, expect to amortize their R&D costs and return against their product sales. A mandatory arbitrary aggregate cap on royalties for essential patent claims may penalize the first business model to benefit the second business model, depending on how the cap is implemented. As a result, investment in innovation and the subsequent contribution of technology resulting from such investments to standards bodies would be discouraged. These are both undesirable consequences of such policies.

In addition, a company that prefers to enter into individual cross-licenses may not want to include its standards-essential patents in a patent pool or other arrangement subject to a royalty cap. Similarly, a product developer that primarily wishes to use its patents defensively, as discussed below, may wish to offer royalty-free licenses to its essential claims on the condition that the licensee agree not to sue the product developer for patent infringement in general. Finally, as will be discussed in detail in Part 2, many licensees will also want

licenses tailored to their specific objectives either through cross-licenses, package licenses, or other business deals. Introducing a mandatory collective royalty cap would make such flexibility virtually impossible.

—to be continued in the next issue of *Landslide*.

### Endnotes

1. See the American Bar Association's Standards Development Patent Policy Manual for information on the variations of patent policies. COMM. ON TECHNICAL STANDARDIZATION SECTION OF SCT. & TECH. LAW, AM. BAR ASS'N, STANDARDS DEVELOPMENT PATENT POLICY MANUAL (Jorge L. Contreras ed., 2007) [hereinafter ABA MANUAL].

2. Third parties also may hold patents that can impede or block a standard, but this discussion is limited to instances involving patents held by standards participants.

3. See discussion *infra* p. 36, Patent Hold-Up Scenarios.

4. For example, some "necessary claim" definitions provide that there is no "commercially reasonable alternative." E.g., CTR. FOR TRADE FACILITATION & ELEC. BUS., UNITED NATIONS ECON. & SOC. COUNCIL, UNCEFACT INTELLECTUAL PROPERTY RIGHTS POLICY § 2.7 (May 17, 2006), available at [http://www.unece.org/cefact/cf\\_plenary/plenary06/trd\\_cf\\_06\\_11e.pdf](http://www.unece.org/cefact/cf_plenary/plenary06/trd_cf_06_11e.pdf).

5. BLUETOOTH, BLUETOOTH PATENT/COPYRIGHT LICENSE AGREEMENT § 5(a)–(b), available at [https://www.bluetooth.org/DocMan/handlers/DownloadDoc.aspx?doc\\_id=67](https://www.bluetooth.org/DocMan/handlers/DownloadDoc.aspx?doc_id=67).

6. *Id.*

7. *Id.* § 1(p)(iv). "[T]he Scope shall not include (i) any enabling technologies that may be necessary to make or use any product or portion thereof that complies with the Bluetooth Specification and/or Foundation Specification, but are not themselves expressly set forth in the Bluetooth Specification and/or Foundation Specification (e.g., semiconductor manufacturing technology, compiler technology, object oriented technology, basic operating system technology, etc.); or (ii) the implementation of other published specifications developed elsewhere but referred to in the body of the Bluetooth Specification and/or Foundation Specification; or (iii) any portions of any product and any combinations thereof the purpose or function of which is not required for compliance with the Bluetooth Specification and/or Foundation Specification; or (iv) Application Programming Interfaces, applications, or user interfaces; including the technology used to generate, display or interact with a user." *Id.* § 1(p)

8. See ABA MANUAL, *supra* note 1, § IV.

9. There are some limited circumstances when a patent pool among multiple entities holding essential patent claims may be useful in the context of standards; for example, where the standard is fairly self-contained and does not include options and alternatives. The focus of this paper is primarily on bilateral licensing arrangements as opposed to patent pool arrangements.

10. See Christopher B. Hockett & Rosanna G. Lipscomb, *Best FRANDs Forever? Standard-Setting Antitrust Enforcement in the United States and the European Union*, 23 ANTITRUST ABA 19, 19–20 (Summer 2009); DAMIEN GERADIN & MIGUEL RATO, CAN STANDARD-SETTING LEAD TO EXPLOITATIVE ABUSE? A DISSONANT VIEW TO PATENT HOLD-UP, ROYALTY STACKING AND THE MEANING OF FRAND 52 (Apr. 2006), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=946792](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=946792).

11. See Complaint, *In re Negotiated Data Solutions LLC*, No. C-4234 (F.T.C. 2008), available at <http://www.ftc.gov/os/caselist/0510094/080923ndscorcomplaint.pdf>. A patent holder whose patents were ultimately assigned to N-Data offered to license its NWay technology for a one-time lump sum of \$1,000 if the NWay technology was included in an IEEE standard. *Id.* at 3. A number of implementers of the standard claimed that N-Data would not honor the \$1,000 commitment after the IEEE standard was widely adopted. See *id.* at 6.

12. GERADIN & RATO, *supra* note 10, at 20.

13. U.S. DEP'T OF JUSTICE & THE FTC, ANTITRUST ENFORCEMENT AND INTELLECTUAL PROPERTY RIGHTS: PROMOTING INNOVATION AND COMPETITION 65, 91 (Apr. 2007), available at <http://www.ftc.gov/reports/>



innovation/P040101PromotingInnovationandCompetitionrpt 0704.pdf; FTC, TO PROMOTE INNOVATION: THE PROPER BALANCE OF COMPETITION AND PATENT LAW AND POLICY 3, 7, 32-33 (Oct. 2003), available at <http://www.ftc.gov/os/2003/10/innovationrpt.pdf>; David Teece, Professor, Univ. of Cal., Berkeley, Remarks at DOJ & FTC Hearing on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy 501-02, 512 (Feb. 27, 2002), available at <http://www.ftc.gov/opp/intellect/020227trans.pdf>; Wesley M. Cohen, Professor, Carnegie Mellon Univ., Remarks at DOJ & FTC Hearing on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy 34-35 (Feb. 20, 2002), available at <http://www.ftc.gov/opp/intellect/020220trans.pdf>.

14. See, e.g., *Qualcomm Inc. v. Broadcom Corp.*, 548 F.3d 1004 (Fed. Cir. 2008); *Rambus Inc. v. Infineon Techs. AG*, 318 F.3d 1081 (Fed. Cir. 2003); *Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008); *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007); *Vizio Inc. v. Funai Elec. Co.*, No. 09-cv-00174 (C.D. Cal. 2009); *Commonwealth Sci. & Indus. Research Organisation v. Buffalo Tech. Inc.*, 492 F. Supp. 2d 600 (E.D. Tex. 2007); Order, *In re Vizio, Inc. v. Funai Elec. Corp.*, No. DA 09-536 (F.C.C.R. 2009), available at [http://fallfoss.ftc.gov/edocs\\_public/attachmatch/DA-09-536A1.pdf](http://fallfoss.ftc.gov/edocs_public/attachmatch/DA-09-536A1.pdf); Complaint, *In re Negotiated Data Solutions LLC*, No. C-4234 (F.T.C. 2008), available at <http://www.ftc.gov/os/caselist/0510094/080923ndsc.complaint.pdf>; Letter from Denis Redfern, Senior Vice President Licensing, CSIRO Business Services, to Stuart J. Kerry, Chair, IEEE 802.11 WLANs WG (Sept. 27, 2007), available at <https://mentor.ieee.org/802.11/public-file/07/11-07-2619-00-0000-802-11-wg-chairs-received-email-letter-response-from-csro-regarding-loa-requests.doc> (regarding letter of assurance requested by IEEE).

15. Letter from Ruth Hill Bort, Chair, Section of Sci. & Tech. Law, Am. Bar Ass'n, to Marlene H. Dutch, Sec'y, Fed. Comm'n Comm'n 4 (Apr. 23, 2009).

16. *Georgia-Pac. Corp. v. U.S. Plywood Corp.*, 318 F. Supp. 1116 (S.D.N.Y. 1970).

17. *Charge to the Jury at 28, Symbol Techs., Inc. v. Proximo, Inc.*, No. 01-801-SLR (D. Del. 2003).

18. Draft Provisions on the Administration of Formulating and Revising National Standards Involving Patents, Standardization Administration of China, Nov. 2, 2009.

19. See discussion *infra* at pp. 37-8, *Ex Ante* Disclosure of License Terms.

20. E.g., ACORD, INTELLECTUAL PROPERTY RIGHTS POLICY (May 13, 2008), available at [http://www.acord.org/about/Governing%20Documents/IPR\\_Policy.pdf](http://www.acord.org/about/Governing%20Documents/IPR_Policy.pdf); HR-XML CONSORTIUM, CONSORTIUM MEMBERSHIP AGREEMENT § 5 (Jan. 2008), available at [http://www.hr-xml.org/resources/HR-XML\\_Membership\\_Agreement\\_2008.pdf](http://www.hr-xml.org/resources/HR-XML_Membership_Agreement_2008.pdf). Patent licenses include many terms besides the royalty term. For example, they may include reciprocity provisions, defensive termination provisions, field of use limitations, restrictions on assignment and transferability, and other customary terms and conditions found in other agreements. See, e.g., OPEN INVENTION NETWORK, LICENSE AGREEMENT, available at [http://www.openinventionnetwork.com/pat\\_license\\_agreement.php](http://www.openinventionnetwork.com/pat_license_agreement.php).

21. Letter from Robert Skitol, Esq., Drinker, Biddle & Reath, LLP, to Thomas Barnett, Assistant Attorney Gen., U.S. Dep't of Justice (June 15, 2006), available at <http://www.gtwassociates.com/answers/DOJ%20PDF/DOJ06-05VITARequest.pdf> [hereinafter Skitol Letter to DOJ].

22. See VITA, VITA PATENT POLICY (Oct. 30, 2006), available at <http://www.vita.com/disclosure/VITA%20Patent%20Policy%20section%2010%20draft.pdf>.

23. Press Release, Karen McCabe, IEEE Standards Ass'n, IEEE Enhances Standards Patent Policy to Permit Fuller Disclosure on Licensing (Apr. 30, 2007), <http://standards.ieee.org/announcements/sdsparpol.html>.

24. Indeed several parties owning essential patents for LTE have made voluntary licensing disclosures. See, e.g., LTE/WiMax Patent Licensing Statement (Dec. 2008), available at [http://www.qualcomm.com/common/documents/licensing/LTE-WiMax\\_Patent\\_Licensing\\_Statement.pdf](http://www.qualcomm.com/common/documents/licensing/LTE-WiMax_Patent_Licensing_Statement.pdf); Kevin Fitchard, *Nortel Lays Down Royalty Rate for LTE*, CONNECTED PLANET, May 6, 2008, available at <http://connectedplanetonline.com/wimax/news/nortel-royalty-rate-lte-0506/>; Nokia Licensing Policy on

Long Term Evolution and Service Architecture Evolution Essential Patents, available at <http://www.nokia.com/press/pr-information/state-ment/nokia-licensing-policy-on-long-term-evolution-and-service-architecture-evolution-essential-patents>.

25. Brief for Hewlett Packard *et al.* as Amici Curiae Supporting FTC's Petition for Writ of Certiorari, *Rambus Inc. v. FTC*, 522 F.3d 456 (D.C. Cir. 2008) (No. 07-1086).

26. Letter from Thomas Barnett, Assistant Attorney Gen., U.S. Dep't of Justice, to Robert Skitol, Esq., Drinker, Biddle & Reath, LLP (Oct. 30, 2006), available at <http://www.usdoj.gov/atr/publicbusreview/219380.htm> ("[W]orking group members will not set actual licensing terms. The patent holder and each prospective licensee will negotiate separately, subject only to the restrictions imposed by the patent holder's unilateral declaration of its most restrictive terms.").

27. As discussed *infra*, not all patents with essential claims will be disclosed by participants, and, importantly, there is little likelihood that patents will be disclosed by patent holders who are not participating in the SSO's activities.

28. The U.S. Department of Justice has noted that SSO-licensee cartel behavior in this respect could also be anticompetitive. Hill B. Wellford, Council to the Assistant Attorney Gen., Antitrust Div., U.S. Dep't of Justice, Address at the 2d Annual Seminar on IT Standardization and Intellectual Property China Electronics Standardization Institute: Antitrust Issues in Standard Setting (Mar. 29, 2007), available at <http://www.usdoj.gov/atr/public/speeches/222236.htm> ("Under the patent laws, innovation should be rewarded, particularly where it results in a patent that is essential on its own merits. It makes no sense to endorse the innovative effort represented by SDOs while disdaining the innovative effort represented by a patent or other intellectual property. SDO buyer-cartel behavior has the real potential to damage innovation incentives, and therefore is properly the subject of antitrust scrutiny.").

29. Letter from Thomas Barnett, Assistant Attorney Gen., U.S. Dep't of Justice, to Michael A. Lindsay, Esq., Dorsey & Whitney, LLP 11 (Apr. 30, 2007), available at <http://www.usdoj.gov/atr/publicbusreview/222978.pdf> ("The proposed patent information policy permits voluntary commitments to most restrictive licensing terms, but prohibits discussion of specific licensing terms within IEEE-SA standards development meetings. Based on your statements, we understand that this prohibition extends to joint negotiations of licensing terms within standards development meetings. The Department observes in this regard that IEEE's current policies permit limited discussions of costs related to proposed standards. Such discussion, could, in certain circumstances, rise to the level of joint negotiation of licensing terms. You have not requested, and we are not providing, the Department's views on joint negotiations that might take place inside or outside such standards development meetings or IEEE sponsored meetings.

"The proposed IEEE-SA policy will prohibit standard setters from discussing the prices at which standardized products would be sold. The Department likely would challenge under section 1 of the Sherman Act any activities that reduced competition by using IEEE-SA's proposed patent policy as a cover to fix the prices of downstream standardized products. The Department would also be likely to challenge efforts by patent holders to rig their LOAs by agreeing on the licensing terms they will disclose to IEEE-SA. IEEE-SA should continue its efforts to educate those who set standards under its auspices about the consequences of such activities.")

30. Deborah Platt Majoras, Chairman, FTC, Remarks at Standardization and the Law: Developing the Golden Mean for Global Trade: Recognizing the Procompetitive Potential of Royalty Discussions in Standard Setting 7 (Sept. 23, 2005), available at <http://xml.coverpages.org/MajorasStanford20050923.pdf> ("Second, joint *ex ante* royalty discussions that are reasonably necessary to avoid hold up do not warrant per se condemnation. Rather, they merit the balancing undertaken in a rule of reason review. We would apply the rule of reason to joint *ex ante* royalty discussions because, quite simply, they can be a sensible way of preventing hold up, which can itself be anticompetitive. Put another way, transparency on price can increase competition among rival technologies striving for incorporation into the standard at issue. They may allow the 'buyers' (the potential licensees in the standard-setting group) to get a competitive price from

the 'sellers' (the rival patentees vying to be incorporated into the standard that the group is adopting) before lock-in ends the competition for the standard and potentially confers market power on the holder of the chosen technology.").

31. *But see* *Broadcom Corp. v. Qualcomm Inc.*, 501 F.3d 297 (3d Cir. 2007). Although Qualcomm had disclosed its patents *ex ante* and offered to negotiate licenses on RAND terms and conditions, the court held that the district court erred in dismissing Broadcom's antitrust counts based on allegations that Qualcomm intended not to comply with the commitment when made. *Id.* at 315.

32. It should also be noted that transparency and certainty may not even be the appropriate goals with regard to the standards-licensing process, as opposed to the standards-setting process, because licensing will not be a one-size-fits-all endeavor that applies in the same way to each patentee and licensee.

33. *E.g.*, Skitol Letter to DOJ, *supra* note 21. VITA's *ex ante* policy that requires the disclosure of license terms or maximum royalties has not resulted in more certainty because VITA has not made any disclosures public.

34. *See* MICHAEL FRÖHLICH, THE INTERFACE BETWEEN STANDARDS AND IPRS: THE ETSI IPR POLICY (2007), available at <http://www.thebolingroup.com/collaborativeadvantage/downloads/Michael%20Frohlich%20%20Standards%20Edge%20Beijing.pdf>.

35. *See* DAMIEN GERADIN, STANDARDIZATION AND TECHNOLOGICAL

INNOVATION, SOME REFLECTIONS ON EX-ANTE LICENSING, RAND, AND THE PROPER MEANS TO REWARD INNOVATORS 14 (June 2006), available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=909011](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=909011).

36. *See id.* at 15. *See also* FRÖHLICH, *supra* note 34 (providing that an *ex ante* collective royalty cap is equivalent to fixing in advance a cap shared between licensors according to their strict mathematical proportion of essential patents, which the EU Commission found not acceptable).

37. *See* M. Howard Morse, Drinker, Biddle & Reath LLP, Remarks at DOJ & FTC Hearings on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy 199-200 (Apr. 17, 2002), available at <http://www.ftc.gov/opp/intellect/020417trans.pdf> (stating "mandatory package licensing ought to be unlawful where a firm is compelled to accept licenses under patents that are not necessarily needed. . . . If there is no mechanism for existing licensees or new entrants to establish that a patent is not essential and to pay lower royalties when such firm only needs a portion of the patents in a pool, there will be little incentive to improve upon the standard.") *See also* Stephen P. Fox, Hewlett-Packard Co., Remarks at DOJ & FTC Hearing on Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy 700 (Feb. 28, 2002) available at <http://www.ftc.gov/opp/intellect/020228ftc.pdf> (stating "[a] common approach today is a one-size-fits-all license for the totality of patents within the pool. But we think applicants in these situations should be able to license the set of patents they need without being forced to take and pay for the whole package.")

## **EXHIBIT 23**

*This article is Part II of a paper originally presented by the author on April 7, 2010, at the 25th Annual Intellectual Property Law Conference of the ABA Section of Intellectual Property Law in Arlington, Virginia. Part I was published in the last issue of Landslide, September–October 2010.*

# Negotiating Standards-Related Patent Licenses: How the Deal Is Done part II

By Michele K. Herman

*Part I ended with a discussion of how the author believes that efforts to “fix” the RAND framework are misguided. Part II further explains her view that, given the realities of licensing negotiations, attempting to define specific terms for RAND licenses for standards-essential patent claims does not optimize the negotiation process.*

## Standards-Related Patent Licenses

Patents with standards-essential patent claims are not licensed differently than any other patent. They are licensed as part of cross-licenses, portfolio licenses, and other business transactions. To the extent that standards-related patents are encumbered by reasonable and nondiscriminatory (RAND) commitments or reasonable, nondiscriminatory, and royalty-free (RAND-RF) commitments, those patents may not be excluded from negotiation. In other words, patentees may not refuse to offer licenses under the essential patent claims contained in such patents to licensees willing to negotiate in good faith. As with any patent license negotiation, patentees and prospective licensees have different and unique goals. Some patentees want to extract the most value possible from their portfolios through licensing while others merely plan to leverage their portfolios defensively to maximize their freedom to operate as to patents of other entities. Other patentees seek to leverage their portfolios to create patent harmony around certain technology, e.g., general-purpose components, while ensuring that they can differentiate their own products and services from their competitors' products and services. Many prospective licensees will have similar goals with regard to their own patent portfolios and respective products and services. Of course, manufacturers and suppliers, especially those with no patent portfolios or weak portfolios of their own, will want to pay as little as possible to a patentee for the rights needed to commercially manufacture or exploit their products and services.

Patent licenses include a multiplicity of interdependent terms and conditions. The trade-offs made among these terms and conditions depend upon the respective goals of the patentee and licensee, as well as the strength of their respective portfolios. There are even more interrelated terms and conditions when a patent license is part of a larger business deal between the parties. As such, the fact that some of the patents may contain essential patent claims subject to RAND or RAND-RF terms rarely comes into play as part of the negotiation in the context

of the business deal. In recent years, however, when the patentee and an infringer have been unable to reach an agreement, one or both parties may consider when standardized technology is part of the relevant portfolios. If it is, a patentee may use the fact to argue that its portfolio must be licensed in order for the infringer to participate in the relevant market. Meanwhile the infringer may try to ascertain whether or not any of the patents are or should have been subject to a RAND or RAND-RF license commitment to either argue that the value of the portfolio should be less or that the patentee has violated the relevant patent policy, its licensing commitments, or both, and, consequently, is estopped from asserting such patents under a variety of legal and equitable theories.

Because successfully negotiated license agreements involve significant confidential terms between the parties, such agreements are rarely made public. As a result, it is difficult to show, based on public information, that the vast majority of standards-related patents are indeed incorporated in broader cross-licenses, portfolio licenses, and business deals. Notwithstanding the lack of public agreements, there are examples of agreements that have been litigated or involved in agency enforcement proceedings that may be considered exemplary of the practice to include both essential and nonessential patent claims in bilaterally negotiated patent licenses and business deals.

## Freedom to Operate

Manufacturers, distributors, and customers of standardized technologies (“implementers”) have a business objective to reduce any risks that may result in litigation expense, payment of patent royalties or damages, or having their products enjoined as a result of patent infringement. Such concerns are not limited to the essential patent claims for standards, but relate to any patent claim that their products may infringe. To

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the extent that such implementers have patent portfolios of their own, they are likely to leverage those patent portfolios in connection with standardized technologies to reduce the risk that other implementers will enforce patents against them, i.e., the implementer desires “freedom to operate.”

There are at least two common ways that implementers leverage their portfolios to achieve greater freedom to operate. In the first approach, an implementer may enter into a RAND-RF license or patent nonassertion (covenant not to sue (CNS)) to its essential claims, but only as long as the prospective licensee does not sue the implementer. This is known as defensive termination or defensive suspension. A similar approach is to license patent claims, both essential and nonessential, for standardized technologies on the condition that the prospective licensee grants a reciprocal license to the implementer. This is known as reciprocity. While defensive termination and reciprocity are common terms in patent licenses, the scope of what may trigger a defensive termination and the scope of the reciprocal grant are often subject to significant disagreement and negotiation.

An example of defensive termination can be readily seen in Cisco’s patent statement to the Internet Engineering Task Force (IETF).<sup>1</sup> The relevant portion of Cisco’s statement provides:

If this standard is adopted, Cisco will not assert any patents owned or controlled by Cisco against any party for making, using, selling, importing or offering for sale a product that implements the standard, provided, however that Cisco retains the right to assert its patents (including the right to claim past royalties) against any party that asserts a patent it owns or controls (either directly or indirectly) against Cisco or any of Cisco’s affiliates or successors in title or against any products of Cisco or any products of any of Cisco’s affiliates either alone or in combination with other products; and Cisco retains the right to assert its patents against any product or portion thereof that is not necessary for compliance with the standard.<sup>2</sup>

In this particular example, the standard is an Internet draft entitled “Distribution of diverse BGP paths.” Note that Cisco appears to offer a CNS for any patent claims that would be infringed by a “product that implements the standard,” not just claims essential for the implementation of the standard. Notwithstanding this CNS, Cisco reserves the right to assert its patents against “any product or portion thereof that is not necessary for compliance,” thereby effectively limiting the CNS to essential claims. The CNS also does not apply to anyone who asserts a patent against Cisco, its affiliates, or, importantly, against any party regarding a Cisco product, even if the patent infringement is unrelated to the standard. In effect, Cisco is offering implementers freedom to operate with respect to only those portions of products that are necessary for compliance with the standard as long as the beneficiaries of that CNS do not sue Cisco, its affiliates, their distributors, customers, or partners for any patent infringement. Consequently, Cisco is leveraging its essential claims to obtain a greater freedom to operate for all of its products in connection with all of its distribution channels.

Not all parties agree that the breadth of this defensive termination provision is consistent with a commitment to license essential patent claims on terms that are reasonable

and nondiscriminatory. Without legal precedent for guidance as to whether broad defensive termination provisions are indeed RAND, some implementers, like Cisco has done in this case, have offered to alternatively license their essential patent claims on royalty-bearing terms presumably with a much narrower defensive termination provision, i.e., limited to the licensee bringing suit against Cisco under the licensee’s essential patent claims.

Reciprocity is in some ways similar to defensive termination except that an implementer does not obtain an actual license from its licensees under a defensive termination provision; the implementer can merely terminate the license it granted if the licensee sues. In practice this can be an important distinction. If an implementer is sued by its licensee for patent infringement and the implementer had obtained a reciprocal license, then the implementer has a defense to the patent infringement claim because the implementer is licensed. If, instead, the implementer is sued by its licensee for patent infringement and the implementer may only rely on its defensive termination provision, then the implementer may countersue on its own patents but does not have a defense to the patent infringement claim because the implementer is not licensed. Like defensive termination, parties may argue that the reciprocity terms are not RAND if the implementer demands grant backs of greater scope than the scope of the license the implementer offers. In many RAND negotiations, however, the parties each may want reciprocal licenses but to different products or services; e.g., one company wants a grant for hardware and the other for software. As a result, it is not uncommon to see the scope of the grants differ in negotiations involving standards-essential patent claims.

In a recent case, Nokia brought a patent infringement lawsuit against Apple for infringing a number of standards-related patents that Nokia has claimed are essential to various ETSI and IEEE standards.<sup>3</sup> Apple answered the complaint claiming that Nokia reneged, among other things, on its F/RAND statements by requiring Apple to grant Nokia patent licenses to Apple’s smartphone technologies, which allegedly are not part of the ETSI and IEEE standards for which Nokia is licensing its essential patent claims.<sup>4</sup> Apple’s answer states:

79. Throughout the negotiations, Apple made clear to Nokia that, except for one specific family of patents, Apple would not agree to cross-license to Nokia any of its patents (in particular those relating to iPhone technology) that were not essential to relevant industry standards, such as GSM, GPRS, EDGE, UMTS, and WLAN.

80. Apple has no obligation, under any law or otherwise, to license these non-standards-essential patents to Nokia. Thus, Nokia is seeking unlawfully and unfairly to leverage the monopoly power it obtained from its false F/RAND commitments to SSOs to obtain licenses to Apple’s proprietary technology (to which Nokia is not entitled) that would enable Nokia to try to develop products with features now unique to the iPhone. Nokia’s demand for license terms that are unfair, unreasonable, and discriminatory constitutes a breach of Nokia’s F/RAND commitments.<sup>5</sup>

The resolution of this case will be interesting if it, among other things, provides guidance as to the scope of grant backs that can be demanded as part of a RAND license. However,



such resolution, if forthcoming, will almost certainly be limited to the facts of this particular case. As discussed above, there are many trade-offs within a patent license, many of which could affect the scope of the grant back, such as what other rights the implementer is granting, the field of use of the license, whether the licensee can sublicense or transfer the rights, etc.

These examples highlight the desire for implementers to obtain patent rights or freedom to operate beyond what is essential for compliance with a particular standard. It is therefore common for negotiations to move quickly away from a license for essential patent claims to broader negotiations concerning portfolios of essential and nonessential claims through package licenses or cross-licenses. In the end, standards-essential patents are licensed in most cases as part of broader agreements.

### *Maximizing Returns*

Patent holders generally want the largest return on their research and development investments, and, accordingly, will want to maximize the value of their patent portfolios. Value may be measured in terms of licensing revenue generated. Innovators may maximize licensing revenue by maximizing the amount they receive per license, by maximizing the number of paying licensees, or through a combination of the two.

Some innovators maximize the amount they can obtain per license by combining the nonessential and essential patent rights into a single portfolio. The idea behind this strategy from the patentee's perspective is that the more patents licensed, the more the licensee should pay for the package. Licensees, however, may negotiate agreements that include improvement patents and patents covering new versions of their products without increasing rates. Of course, when nonessential and essential patent claims are licensed together, qualitative factors associated with the various claims also must be considered when valuing the portfolio. In other words, the value of the portfolio is not simply based on the number of patents being licensed. In addition, an innovator may license patents as part of a broader technology license that includes know-how and other valuable intellectual property rights. In such cases, the innovator may benefit from the widest commercial implementation of its licensed technology and the licensee may benefit by being able to achieve an earlier time to market with a smaller investment in development activities. Standards-essential patent claims may help to serve both goals—attracting large numbers of licensees and ensuring that the patented technology is widely adopted—but the standards-essential patent claims are just a part of the broader agreement.

As mentioned above, the specific terms of few patent cross-licenses or package licenses are made publicly available. Thus, it is not a simple matter to show that it is a common practice to license many standards-essential patent claims along with nonessential claims. However, there are a number of recent cases that illustrate that both essential and nonessential claims are typically part of package licenses and cross-licenses.

For example, Research in Motion (RIM) entered into a cross-license agreement with Motorola in 2003.<sup>6</sup> Motorola granted RIM a nonexclusive, worldwide license to practice

patents Motorola claimed were essential to several standards, along with a license to practice several nonessential Motorola patents, for five years.<sup>7</sup> RIM attempted to renegotiate the license terms and conditions for both the essential and nonessential patents, but then brought an action alleging that Motorola had proposed terms that were unfair, unreasonable, and discriminatory, and breached the cross-license agreement section requiring Motorola to negotiate an extension or new license in good faith.<sup>8</sup>

In another example, Samsung and Ericsson entered into a cross-licensing agreement that expired in 2005.<sup>9</sup> The parties were unable to agree on renewal terms resulting in patent infringement litigation.<sup>10</sup> The cross-licensing agreement included both essential and nonessential patent claims for WCDMA cellular technology, although the dispute focused on each party's alleged breach of its obligations to license its essential patent claims to the other party under fair, reasonable, and nondiscriminatory terms.<sup>11</sup>

Although the lawsuit between Nokia and Apple mentioned above is largely based on standards-essential patent claims, the dispute is not focused solely on standards-essential patent claims. Indeed, both parties have brought ITC complaints against one another seeking exclusion on account of nonessential patents:

The Asserted Patents are sometimes referred to as "implementation patents" (as opposed to "essential patents"). Implementation patents are not essential to any relevant wireless communication standards, and, therefore, do not implicate contractual licensing obligations required by membership in many wireless communication standard setting organizations. Nokia's implementation patents—including the Asserted Patents—are particularly important to Nokia's success because they permit Nokia to differentiate its products from those of its competitors.<sup>12</sup>

It should be clear from these examples that both standards-essential claims and nonessential claims are often licensed together in a cross-license negotiated on a bilateral basis. The same is true for package licenses. After settling a complaint by the European Commission, Rambus Inc. now includes a sample patent license on its website.<sup>13</sup> The sample patent license includes patents that are essential and nonessential to several JEDEC<sup>14</sup> standards.<sup>15</sup> The licensed patents are defined in terms of the Dynamic Random Access Memories (DRAMs) that comply with certain JEDEC-published specifications.<sup>16</sup> If the license had been tailored to standards-essential claims, it would have presumably defined the subject patents as those patent claims that are necessarily infringed by implementing the JEDEC published specifications. Instead, the licensed products and the patents subject to the agreement extend to the entire memory, not just those portions that comply with the JEDEC-published specifications.<sup>17</sup> Consequently, the sample license agreement offered by Rambus and approved by the EU includes both standards-essential patent claims and nonessential patent claims.

Another fairly common practice among innovators is to license technology that includes patents, know-how, and other intellectual property. In offering such technology licenses, the innovator is often pressed to grant certain representations and warranties of noninfringement or provide indemnification

for patent infringement, or both. When the innovator's licensees are large in number and often competitors, making such representations and warranties or providing indemnities for patent infringement may be very risky for the innovator licensing the technology. Not only might the innovator have to step in and defend against patent infringement claims, pay damages based on them, and redesign the technology, but the infringement claims in and of themselves may chill the commercialization of the technology. Any chilling effect could also significantly reduce the innovator's licensing revenues. As a result, many innovators attempt to create a royalty-free zone around their technology by only licensing the technology, including standards-essential patent claims and other patent claims, on the condition that their licensees agree not to assert any of their own patents against the technology or specific products they license from the innovator. The nonassertion of patents extends not only to the innovator, but also to all of the innovator's licensees.

For example, at one time Microsoft licensed its Windows products under a model where its OEMs were requested to agree not to assert patents against Microsoft or Microsoft's other OEM licensees. It was believed by some that everyone would benefit if an ecosystem could be built around a platform that all OEMs supported. In exchange for the patent nonassertion agreement, many OEMs requested that Microsoft make representations or warranties of noninfringement with regard to its other licensees, or that Microsoft offer to indemnify its OEMs if another OEM licensee sued for patent infringement. The patent nonassertion provisions covered both standards-essential and nonessential patent claims. As Microsoft began to enter into more cross-licenses, it determined that it no longer needed the nonassertion of patents provisions in its OEM license agreements and discontinued the use of that provision.<sup>18</sup>

Similarly, Qualcomm licenses its patent portfolios that include both standards-essential claims and nonessential claims. Qualcomm requests that its licensees grant royalty-free cross-licenses to Qualcomm, and offers to include in their licensing agreements a covenant not to assert provision (CNTA) relating only to standards-essential patent claims whereby licensees agree not to assert their standards-essential patent claims against other Qualcomm licensees who make the same agreement. Qualcomm negotiates the scope of its cross-licenses and does not require inclusion of the CNTA. The Japanese Federal Trade Commission (JFTC) nevertheless ordered Qualcomm to remove such provisions with respect to Japanese licensees.<sup>19</sup> Qualcomm explains:

Qualcomm naturally disputes the notion that any provisions in our license agreements with Japanese companies were forced upon them. These licenses were agreed to voluntarily by the Japanese licensees many years ago, after extensive arms-length negotiations. Indeed, the non-assert provision was rejected by several Japanese companies, and is not even a provision in those agreements. In addition, these cross-license and non-assert provisions, common elements of many license agreements, provide enormous benefits to our customers and licensees. Qualcomm believes that requiring revisions of long-standing contracts is neither justified by the facts nor supported by the law.<sup>20</sup>

The JFTC's cease and desist order has been stayed by the Tokyo High Court pending a final decision by the JFTC after a full evidentiary hearing.<sup>21</sup> Irrespective of the merits of the JFTC's action against Qualcomm, it should be apparent that licensing technology in a way that promotes a royalty-free zone for the licensed technology (including standards-essential patent claims) is not an uncommon practice and may indeed be viewed by many licensees as quite beneficial.

#### *Business Transactions*

Many standards-essential patent claims are licensed as part of commercial product transactions. Again, because most business agreements are negotiated on a confidential and bilateral basis, the terms of such agreements are typically not made public. However, there are a number of product licenses that are made partially public, especially for software that can be downloaded from a vendor's website. For example, IBM licenses its WebSphere products under a license agreement that it makes publicly available.<sup>22</sup> Although the Websphere license agreement does not include a specific-patent license, it does provide a specific-use license to its licensees:

Except as provided below, each valid Proof of Entitlement to the Program authorizes you to install and use the Program, or any part of the Program on a machine with a single processor (or a machine with multiple processors, if you acquire a Proof of Entitlement for the Program for each processor in such machine). You must acquire a Proof of Entitlement for each processor on which the Program, or any part of the Program is installed and used. For example, an additional testing server, staging server or review server requires the use of a separate copy of the Program, so it requires an additional Proof of Entitlement.

These Proofs of Entitlement may be obtained separately for each of these Programs or as multiple Proofs of Entitlement for this Program.<sup>23</sup>

Even though there is no express patent license for standards-essential patent claims, it should be reasonably understood that IBM has at least impliedly licensed the patents needed to exercise the grant of the license IBM has made.<sup>24</sup>

Similarly, Adobe licenses its Adobe Acrobat products with the following provision:

... Adobe grants Licensee a non-exclusive license to install and use the Server Components delivered hereunder according to the terms and conditions of this Agreement and the applicable License Metrics and for the purposes described in the Documentation.<sup>25</sup>

Again, a licensee would arguably be minimally licensed under Adobe's patents needed to exercise this license grant.<sup>26</sup> Both IBM's Websphere and Adobe's Acrobat products implement and support numerous industry standards. The implied patent licenses granted in these product licenses are not limited to standards-essential patent claims, but rather to all patent claims that would be needed by the licensee to exercise the license granted.

Neither IBM nor Adobe provides representations or warranties of noninfringement or offers indemnification for patent infringement in their respective public licenses. Consequently, the implied licenses are granted only with regard to the patents they own or control. It should be



understood, however, that the nonpublic agreements that are negotiated between the parties that spell out, among other things, the specific fees paid by individual licensees may also include other negotiated terms, such as appropriate representation and warranties for noninfringement as well as indemnification for patent-related legal claims. When a product license includes such representations, warranties, or indemnities, the licensee is also protected within the scope of those provisions from damages resulting from third-party patent infringement claims, including those based on standards-essential patent claims. As a result, specific licenses for standards-essential patent claims are often viewed as unnecessary by product licensees.

## Conclusion

There are multiple ways that a party may obtain licenses to standards-essential patent claims, but in virtually every case the standards-essential patent claims are not licensed in isolation. Attempting to define specific terms for a RAND license for standards-essential patent claims, consequently, would not be useful in practice. Patent licensing works best when patentees and prospective licensees can negotiate terms that are well-suited to meet their unique objectives and incorporate the patent rights each party needs to support its own business model.

Patent disputes are relatively rare when considering the number of patents granted and the extent to which patented technology has been commercialized on a global basis. The same is true concerning standards-essential patent claims. The number of disputes concerning such claims is also quite small given the large number of adopted standards and patents declared essential to such standards. Balanced patent policies that encourage early disclosure of patents with potentially essential claims and seek assurances that licenses will be made available on RAND terms help to avoid some holdup problems. Holdup problems would, however, not be reduced if standards-essential patent claims were licensed for free since there are many other patent claims that would need to be licensed as part of the deal. Similarly, other proposals to address feared holdup problems would not only have unintended negative consequences as discussed above, but would be impractical given the manner in which standards-essential patent claims are licensed. Accordingly, any standards-related patent policy should be based on how patents are licensed in practice, not how they might be licensed in theoretical isolation. ■

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## **EXHIBIT 24**

## Can Standard-Setting lead to Exploitative Abuse? A Dissonant View on Patent Hold-Up, Royalty Stacking and the Meaning of FRAND

Damien Geradin & Miguel Rato<sup>(\*)</sup>

### I. INTRODUCTION

Standard-setting activities, which aim to achieve device interoperability and product compatibility, play a fundamental role in fostering innovation and competition in a variety of markets. Such activities, typically carried out by armies of engineers, would generally not be expected to fascinate lawyers and economists. But they do - and they have recently received much attention as a result of high-profile cases,<sup>1</sup> complaints lodged with competition authorities,<sup>2</sup> and attempts by members of Standard-Setting Organizations (“SSOs”) to have their rules and procedures modified to prevent allegedly anti-competitive outcomes.<sup>3</sup> There seems to be a growing perception, largely fed by certain interest groups, that current standard-setting procedures generally based on the so-called FRAND licensing regime<sup>4</sup> unduly allow opportunistic holders of Intellectual Property (“IP”) embedded in a standard to extract excessive royalties from their licensees.<sup>5</sup>

Against this background, the objective of this paper is to demonstrate that the existing FRAND regime works. Ongoing proposals to alter it by tilting the bargaining position of licensors, in particular that of pure innovators, in favour of licensees are not only unnecessary, being based on false premises, but would also prove detrimental to investment and innovation. Fortunately, these attempts, and in particularly those to

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<sup>1</sup> See for instance David T. Beddow and Gregg H. Vicinanza, “FTC Charges Rambus With Abuse of Standard Setting Process”, Electronic Newsletter of the Intellectual Property Committee, American Bar Association (ABA) Section of Antitrust Law, 21 June 2002, available at [http://www.abanet.org/antitrust/committees/intell\\_property/june21.html](http://www.abanet.org/antitrust/committees/intell_property/june21.html); For a recapitulation of the well-documented Rambus saga, see the Federal Trade Commission’s (“FTC”) decision In the Matter of Rambus, Inc., Docket No. 9302, available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

<sup>2</sup> See for instance “European Panel Investigates DVD-Standards Rivalry”, New York Times, 9 August 2006; “Qualcomm rivals take case to EU”, Financial Times, 28 October 2005.

<sup>3</sup> See for instance Robert McLeod, “ETSI talks failure puts onus on EC to resolve mobile telephone patent disputes”, MLex Comment, 13 November 2006.

<sup>4</sup> See Part III below.

<sup>5</sup> See Part IV below.

amend the rules and procedures of SSOs', have so far been unsuccessful. They remain nevertheless a constant threat.

This paper is divided into seven parts. Part II describes the main features of standard-setting processes, their significance and the strategic battles that may affect them. Part III focuses on the FRAND licensing regime traditionally prevalent in SSOs. Under this regime, owners of IPR that are essential to the standard typically commit to license such patents on "fair, reasonable and non-discriminatory terms". This Part begins by describing the scope of FRAND commitments. It then reviews the various meanings that have been attributed to the concept of FRAND and argues that a "FRAND royalty" cannot be determined in the abstract. Finally, the argument is made that, contrary to what has been suggested by a number of authors, by giving a FRAND commitment an owner of essential IPR cannot be deemed to have waived its fundamental right to seek injunctive relief in case its rights are infringed. Part IV reviews a number of academic studies which argue that the current FRAND regime has proved inadequate to prevent the emergence of a raft of perceived problems: anti-commons, patent thickets, patent hold-up, patent hold-outs, royalty stacking. It is shown that these studies have been seriously challenged and are subject to significant limitations. Moreover, it is argued that they fail to provide any empirical evidence of the problems denounced. Part V examines various proposals that have been made to reshape the FRAND regime. It shows that these proposals, most of which endorse - in one way or another - a compulsory regime of *ex ante* licensing, would create insurmountable practical difficulties and could raise serious competition law concerns. Part VI considers the applicability of Article 82 of the EC Treaty ("Article 82 EC") to claims of excessive-pricing in the IP and standard-setting context. It shows that, should they be pursued, such claims would raise numerous conceptual and practical difficulties. Determining the competitive price of a tangible good is a notoriously complex undertaking, hence the European Commission's ("the Commission") understandable reluctance to pursue excessive pricing cases except in a narrow set of circumstances. The potential for error will only be compounded when one deals with intangible assets. For these reasons, determination of appropriate royalty levels for valuable IP should be left to the market. Finally, Part VII contains a short conclusion.

## **II. GROWING IMPORTANCE OF STANDARD-SETTING PROCESSES**

In this Part, we successively review the objectives and benefits of standardization (Section A), the various forms of standards (Section B), the strategic battles taking place in SSOs (Section C), and the traditional IPR policies adopted by SSOs (Section D).

### **A. Objectives and Benefits of Standardization**

Industry standards ensure that products from multiple vendors are compatible and interoperable. A standard can be defined as a set of technical specifications which seeks to provide a common design for a product or process.<sup>6</sup> The welfare benefits deriving

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<sup>6</sup> See Herbert Hovenkamp, Mark D. Janis & Mark Lemley, *IP and Antitrust: An Analysis of Antitrust Principles Applied to Intellectual Property Law*, (2003-04 Supplement) at 35.1.

from the existence of standards are obvious. By allowing complementary or component products from different manufacturers to be combined or used together, they increase consumer choice and convenience, and reduce costs.<sup>7</sup> For instance, amongst other practical benefits, they allowed the authors of this paper to connect wirelessly to the Internet from different locations in search of relevant materials.<sup>8</sup> These consumer benefits can be especially important in network markets, i.e. where the value of a product or a service to a particular consumer increases with the number of consumers using the same product or service.<sup>9</sup> Examples of such markets abound in the information and communications technology ("ICT") sectors, where protocols allowing devices to communicate seamlessly and networks owned by different providers to interconnect are essential.

In today's technology-driven world, the importance of industry standardization, device interoperability and product-compatibility have become critical to promoting innovation and competition.<sup>10</sup> Standardization has been one of the key factors explaining the significant growth in innovation and product differentiation in the ICT sector. Of course, achieving product compatibility through standardization usually entails making choices, the effects of which will represent a cost. Standardization may at some point and to some extent constrain a variety of technological options by reducing competition between rival technologies.<sup>11</sup> As will be seen below, it may also raise issues related to access where, as is generally the case, the standard embodies proprietary technology covered by intellectual property rights ("IPR").<sup>12</sup>

## B. Various Forms of Standards

Standardization may arise under three distinct sets of circumstances. First, a particular product or technical specification may evolve into a *de facto* standard through market dynamics, as a result of widespread adoption by consumers. This was the case, for instance, of the first commercially successful spreadsheet, Lotus 1-2-3. Second, in

<sup>7</sup> See Amy A. Marasco, "Standards-Setting Practices: Competition, Innovation and Consumer Welfare", testimony before the Federal Trade Commission and Department of Justice, available at <http://www.ftc.gov/opp/intellect/020418marasco.pdf>, p.3 ("Standards do everything from solving issues of product compatibility to addressing consumer safety and health concerns. Standards also allow for the systemic elimination of non-value added product differences (thereby increasing a user's ability to compare competing products), provide for interoperability, improve quality, reduce costs and often simplify product development. They also are a fundamental building block for international trade.")

<sup>8</sup> Shapiro illustrates the benefits of standardization with the following anecdote: "during the great Baltimore fire of 1904, fire fighters called in from neighboring cities were unable to fight the blaze effectively because their hoses would not fit the Baltimore hydrants. The following year, national standards for fire hoses were adopted." Carl Shapiro, "Setting Compatibility Standards: Cooperation or Collusion?", in Rochelle Dreyfuss, Diane Zimmerman & Harry First, Eds., *Expanding the Bounds of Intellectual Property*, Oxford University Press, 2001 at Section I.

<sup>9</sup> See Mark Lemley, "Intellectual Property Rights and Standard-Setting Organizations", 90 (2002) *California Law Review*, 1889.

<sup>10</sup> See Marasco, *supra* note 7.

<sup>11</sup> On the other hand, standardization promotes competition within a standard, i.e. between products implementing the standard. See David Teece & Edward Sherry, "Standards Setting and Antitrust", (2003) 87 *Minnesota Law Review*, 1913, at 1915.

<sup>12</sup> See Shapiro, *supra* note 8, at Section III.

certain cases public authorities (governments, agencies or supra-national entities such as the European Union ["EU"]) will specify that certain products or processes must comply with a standard and thus compel manufacturers to adopt it. These are usually referred to as *legal* standards. Third, private organisations, often congregating dozens of member companies and individuals, may cooperatively agree on a standard. Such private SSOs may adopt a variety of structures and decision-making processes, and some will be formal whilst others will rely on informal method of cooperation. Their creation will often be prompted or supported by public bodies.<sup>13</sup> In this paper, we will focus on SSO-generated standards, as they are the most significant and their activities raise the most important legal issues.

Standard-setting taking place in SSOs is typically open to all interested parties and is designed to foster consensus.<sup>14</sup> Participation is voluntary and the policies and decision-making procedures of formal SSOs endeavour to ensure that standards are developed in an open environment. Membership of an individual SSO, however, implies accepting the terms and conditions set out in that SSO's bylaws. Where such bylaws are perceived as burdensome or unfair, they will deter technology developers from joining. As a rule, each participating member has the opportunity to contribute to the scope of the particular standard under discussion, participate in its development, take part in the "consensus-driven" approval process, and generally make its positions known. Moreover, even once it is determined within an SSO that a particular process or technology should be standardized, the majority of SSOs allow for appeals by dissenting members.<sup>15</sup> These policies and procedures aim to allow the most appropriate technology to become standardized, based upon technical merit and other relevant factors and to ensure that no single participant can manipulate or abuse the standard-setting process. In that sense, their nature is often quasi-legislative. While firms compete to have their technologies included in a standard, checks and balances are generally built within the SSOs' decision making procedures to ensure that the best technological option succeeds.

### C. Strategic Battles in SSOs

The significance of the outcome of the debate over the most suitable technologies to be incorporated into any given standard have occasionally severely strained the process. This is the result of the inevitable tension between the incentives that every firm has to promote its own proprietary technology for inclusion in a standard and the need for SSO members to work together to develop, establish, endorse, and promote those

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<sup>13</sup> For instance, the European Telecommunications Standards Institute (ETSI), headquartered in Sophia Antipolis, France, was formed in 1988 by the European Conference of Postal and Telecommunications Administrations ("CEPT") and is officially recognized by the European Commission as the organization responsible for standardization of information and communication technologies within Europe. Its mission is to "develop globally applicable deliverables meeting the needs of the Information and Communications Technologies ("ICT") community." See generally Lemley, *supra* note 9.

<sup>14</sup> See Shapiro, *supra* note 8, at 4.

<sup>15</sup> See, for instance, Telecommunications Industry Association (TIA) Engineering Manual, Art. 13.2 and Annex A, Section A5, available at <http://www.tiaonline.org>

standards.<sup>16</sup> This tension can be exacerbated by what may be the “winner-take-all” nature of standardization in areas with significant network externalities such as the ICT sector.

Another factor contributing to the tensions that may arise in standard-setting processes, but also more generally in the interpretation of the IPR policies of SSOs (see below) relates to the fact that firms involved in standard-setting often wear different “hats”, corresponding to the fundamentally different business models they adopt.<sup>17</sup> A distinction may be made between the following categories: (i) pure innovators or upstream-only firms (i.e., firms which develop technologies and earn their revenues solely by licensing them); (ii) pure manufacturers or downstream only firms (i.e., firms which manufacture products based on technologies developed by others but which have no relevant IPR); (iii) vertically-integrated firms (i.e., firms which develop technologies and manufacture products based on those technologies and the technologies of others; these firms may either license their technologies for revenue or choose not to engage in other than defensive licensing activities with their own IPR); and (iv) firms which do not create technologies or manufacture products, but buy products which are manufactured on the basis of patented technologies. These different firms operate in either the downstream product market, the upstream technology market or in both. As a result, their incentives are asymmetric, and their behaviour in the standard-setting context diverges accordingly, as explained below.

While there is a certain degree of fluidity between these categories, the following structure of incentives can be identified:

- Pure innovators are entirely dependent on licensing revenues to continue their operations. These revenues should be sufficient to cover the costs incurred in developing the technologies they seek or hope to license (including the costs of failed projects), as well as to give them sufficient incentives to engage in complex and risky projects.
- Pure manufacturers have converse incentives. As royalties represent a cost (not revenue) they have every incentive to reduce them. The lower the level of royalties payable to holders of IPR essential to the standards they practice, the higher these companies’ potential level of profits.
- Vertically-integrated firms that both develop technology and sell products have mixed incentives. On the one hand, they can draw revenue from their IPR if they so choose. On the other hand, they will have to pay royalties to other firms holding IPR essential to the standard for the products they manufacture. Since the bulk of the revenues (and profits) of these firms is generally generated downstream, through product sales, they are much less dependent than pure innovators on the revenue they may obtain by licensing their essential IPR. In their licensing negotiations with other firms, they may well be more interested in protecting their downstream business from litigation than in charging royalties. They will therefore have a much stronger

<sup>16</sup> See Shapiro, *supra* note 8, at 1.

<sup>17</sup> See Teece & Sherry, *supra* note 11, at 1929.



incentive to cross-license their own essential IPR in exchange for essential IPR held by other firms than in seeking royalties.

- The immediate incentives of buyers of products implementing standards relying on patented technologies are generally in line with those of manufacturers. They may consider that the royalties which manufacturers pay to IP holders will increase the price of the products they buy from such manufacturers. This will, however, only hold true if the product market is competitive. As will be seen below, the extent to which royalty savings are passed on to buyers will vary depending on the state of competition in the downstream market. If that market is not competitive, royalty savings are unlikely to be passed on

#### **D. Traditional IPR Policies Adopted By SSOs**

Most formal SSOs have procedures, usually referred to as IPR policies, the primary goal of which is to address the two fundamental legal issues arising in standard-setting, i.e. the disclosure and licensing of IPR incorporated into a proposed or adopted standard.<sup>18</sup> Although their scope may vary significantly, these procedures seek to encourage IPR owners to make their proprietary inventions available for standardization and use without imposing on them undue obligations. At the same time, SSOs' IPR policies strive to accommodate the interests of implementers to obtain access to the standardized technology, by avoiding situations where IPR owners refuse to license their technology essential to the implementation of a standard to protect, for example, their positions in downstream markets.<sup>19</sup>

Most SSOs encourage IPR owners involved in standardization to disclose upfront, i.e. prior to the adoption of a standard, the IPR that they consider may be "essential" for its implementation.<sup>20</sup> Early disclosure of patents, for instance, "is likely to enhance the efficiency of the process used to finalize and approve standards" and "permits notice of the patent to the standards developer [...] in a timely manner, provides participants the greatest opportunity to evaluate the propriety of standardizing the patented technology, and allows patent holders and prospective licensees ample time to negotiate the terms and conditions of licences [...]"<sup>21</sup>

However, as a rule SSOs do not impose an obligation on IPR owners to conduct a search for, or guarantee the disclosure of, all their IPR which may be essential to practice a given standard. This would prove extremely difficult, as it would require the complex determination of whether a patent or pending patent application reads on a proposed standard. Indeed, such a determination may not be feasible as the scope of a standard

<sup>18</sup> See Lemley, *supra* note 9, at 21 et. seq.

<sup>19</sup> See, e.g. ETSI Guide on IPR, Art. 1 ("The ETSI IPR Policy seeks a balance between the needs of standardization for public use in the field of telecommunications and the rights of the owners of IPR").

<sup>20</sup> ETSI defines "Essential IPR" as meaning "that it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, [...] [to] comply with a standard without infringing that IPR." ETSI IPR Policy (version of 23 November 2005) at Art. 15.

<sup>21</sup> See Guidelines for Implementation of the ANSI Patent Policy, at 3, available at <http://www.ansi.org/>

evolves through its development or, if the relevant IPR is a pending patent application, as claims are modified during patent prosecution. Moreover, it is generally recognized that a search obligation would be especially onerous for the owners of large patent portfolios.<sup>22</sup> The fact that the scope of such disclosure and the obligations imposed on IPR owners by the IPR policies of some SSOs have in certain instances been the subject of conflicting and ambiguous interpretations has led some commentators to decry “the inadequacy of typical SSO disclosure policies.”<sup>23</sup> As will be shown below, these concerns are generally misplaced.

Once disclosure is made, or contemporaneously with disclosure, IPR owners are typically asked to provide an assurance or commitment that, should their IPR prove essential to practice the standard, they will license them on fair, reasonable and non-discriminatory (FRAND) terms to members of the SSO and outsiders.<sup>24</sup> As will be seen below, the IPR policies of most SSOs do not oblige owners of essential IPR to grant irrevocable licences thereto on FRAND terms. This would amount to compulsory licensing and would deter many owners of valuable technology from joining the SSO. But the IPR owner has an incentive to make such a commitment voluntarily. In essence, if the owner of essential IPR seeks to have its technology included in a standard, there is an incentive but no obligation to provide the SSO with the contemplated assurance that it will license on (F)RAND terms. Given the fundamental importance of FRAND commitments, Part III of this paper explores in greater details the concept of FRAND in the context of IP licensing.

### III. IP LICENSING UNDER FRAND COMMITMENTS

This Part successively reviews the traditional model of bilateral negotiations for the licensing of standard-essential IP between potential licensor and licensee (Section A), the rationale behind FRAND commitments (Section B), and the various meanings that have been given to FRAND licensing terms (Section C). It finally shows that FRAND works (Section D).

#### A. The Traditional Model of Bilateral Negotiations Between Potential Licensors and Licensees

Standards typically include technologies protected by IPR. IPR are legitimate exclusive rights, which confer upon their owners two basic prerogatives: (i) the right to

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<sup>22</sup> See Teece & Sherry, *supra* note 11, at 1947 (“An obligation to search for “implicated” IP can be extremely onerous. It is a major task to search a patent database and to compare it against the proposed standard. Patent searching is especially problematic when the standard evolves over time. Further, it is often difficult to know whether a patent “reads on” a proposed standard, as that may entail a major effort at claims construction and interpretation. A search requirement is especially onerous for IP owners who have substantial numbers of patents. Many firms in high-tech industries have thousands of patents, hundreds of which may be potentially relevant to a proposed standard”).

<sup>23</sup> See Robert Skitol, “Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard-Setting”, (2005) *Antitrust Law Journal* 727.

<sup>24</sup> See Lemley, *supra* note 9, p. 26.



prevent any third party from applying or using the subject-matter of the IPR,<sup>25</sup> and, correlatively, (ii) the right to set the conditions of a licence in consideration for use of the IPR and as a reward for the innovative contribution contained therein. Except for certain exceptional circumstances,<sup>26</sup> a patent owner may therefore decide not to grant any third party a licence to practice its invention. These exclusive rights are recognized in all patent laws as well as in the TRIPS agreement.<sup>27</sup>

SSOs generally do not force their member IPR owners, in the ICT sector usually patentees, to grant a licence for their patents. The ETSI IPR policy, for instance, does not contain any obligation to license essential IPR. Rather, it provides that a standard or specification may not be approved unless the owner of essential IPR provides an assurance of its intentions. Section 6.1 of ETSI's IPR Policy provides that when essential IPR is disclosed, ETSI will request – but not oblige – the owner of the IPR to undertake in writing that it is prepared to grant irrevocable licences on FRAND terms and conditions, and as such to waive its right to refuse to offer a licence to those seeking one. A FRAND undertaking also implies that the IPR owner waives its right under patent law to grant exclusive licences. Each of these waivers reflects a willingness by the patentee to forego some of its rights in exchange for the opportunity to have its patented technology included in a standard.

Even if the owner of an essential IPR decides not to make a FRAND commitment, it does not necessarily follow that the IPR in question will be excluded from the standard. For instance, under Article 8.1 of ETSI's IPR Policy, in such case ETSI's General Assembly will examine whether alternate technical solutions exist. Where it concludes that this is not the case, the Director General may request the owner of the IPR to reconsider. However, the latter is under no obligation to agree to license.<sup>28</sup>

<sup>25</sup> See Gerald F. Masoudi, Deputy Assistant Attorney General, Antitrust Division, U.S. Department of Justice, "Intellectual Property and Competition: Four Principles for Encouraging Innovation", Digital Americas 2006 Meeting, Intellectual Property and Innovation in the Digital World, São Paulo, Brazil, 11 April 2006, p. 3 ("In the world of physical property, enforceability means the right to exclude: for example, the ability to evict a person from your land. In the world of intellectual property, the fundamental right is similar: an enforceable IP right means the right to exclude others from using your intellectual property right at all").

<sup>26</sup> The ECJ, for instance, has held that such exceptional circumstances may occur where the refusal to license cannot be objectively justified and would eliminate all competition, in a downstream market, for a new product for which there is customer demand not offered by the owner of the IPR. See *inter alia* Case 238/87 *Volvo* 1989 4 CMLR 122, para. 8; Joined Cases C-241/91 P and C-242/91 P *RTÉ and ITP v Commission* ('Magill') [1995] ECR I-743, para. 50; Case C-418/01 *IMS Health GmbH & Co. OHG v NDC Health GmbH & Co. KG*, paras. 35 and 52.

<sup>27</sup> Article 28 of the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS agreement), Annex 1C to the Marrakech Agreement Establishing the World Trade Organization, signed in Marrakech, Morocco on 15 April 1994.

<sup>28</sup> This was recently confirmed by a Working Committee of the International Association for the Protection of Industrial Property (AIPPI) which stated the following with regard to the relationship between technical standards and patent rights: "The owner of a relevant patent can, in principle, not be forced to grant licenses to other members of the organization or to outsiders. Only in a few exceptional cases should compulsory licences be admissible according to the conditions of Art. 31 TRIPS or the respective national laws" and "(...) A patent right whether owned by a member of the organization or a third party, which has been identified as relevant for a 'de jure' standard, may be used in the standard only with the consent of the

Consistent with a FRAND assurance is the need for standard implementers to still enter into a licence agreement with the IPR owner. In other words, a FRAND assurance is not, itself, a licence. Rather, in consideration for the IPR owner's willingness to forego certain of its exclusive rights, the standard implementer must obtain a grant to use the technology covered by IPR. Licensing negotiations between IPR holders and potential licensees are, however, conducted outside SSOs. For example, ETSI makes clear that such discussions will not take place under its standard development activities, holding the view that its role is directed to technical rather than commercial issues.<sup>29</sup> The "reasonable" and "non-discriminatory" character of any licence must be addressed in a commercial context outside the standards-setting environment. Recent proposals made by some members of ETSI to revise its current IPR policy in order to introduce the principles of "aggregated reasonable terms" and "proportionality" into the definition of FRAND licensing terms did not succeed.<sup>30</sup> No consensus as to the need for or desirability of the proposed reform could be achieved among ETSI members as to these issues.

## **B. Rationale behind FRAND Commitments**

The rationale behind the FRAND commitment is twofold: (i) to ensure dissemination of the essential IPR contained in a standard, thereby allowing it to remain available for adoption by members of the industry, whilst (ii) at the same time making certain that holders of those IPR are able to reap adequate rewards from their innovations. The ETSI IPR Policy, for example, provides that IPR holders should be rewarded properly, explicitly recognizing that they "should be adequately and fairly rewarded for the use of their IPR".<sup>31</sup>

The terms and conditions of any licence arising from a FRAND commitment are the result of a normal process of commercial negotiation between the licensor and the licensee. This commercial, market-driven negotiation of licence terms is not only what FRAND suggests but is also justified from an economic perspective, as it supports dynamic competition and provides incentives to innovate. Firms engaged in the development of innovative technologies "must not be restricted in the exploitation of

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owner." Summary Report on Question Q157 "The Relationship between Technical Standards and Patent Rights", AIPPI Congress Melbourne, 2001, paras. 3.2 and 4, available at <http://www.aippi.org>.

<sup>29</sup> ETSI's Guide on IPR provides that "specific licensing terms and negotiations are commercial issues between the companies and shall not be addressed within ETSI. Technical Bodies are not the appropriate place to discuss IPR issues. Technical Bodies do not have the competence to deal with commercial issues. Members attending ETSI Technical Bodies are often technical experts who do not have legal or business responsibilities with regard to licensing issues. Discussion on licensing issues among competitors in a standards making process can significantly complicate, delay or derail this process." ETSI Guide on IPR, Section 4.1.

<sup>30</sup> Pursuant to this proposal, called "Minimum Change, Optimal Impact", Aggregated Reasonable Terms would mean that "in the aggregate the terms are objectively commercially reasonable taking into account the generally prevailing business conditions relevant for the standard and applicable product, patents owned by others for the specific technology, and the estimated value of the specific technology in relation to the necessary technologies of the product." In turn, proportionality would mean that "compensation under FRAND must reflect the patent owner's proportion of all essential patents." See "Vendors Seek Compromise on LTE", *Informa Telecoms and Media*, 20 March 2006.

<sup>31</sup> See ETSI IPR Policy, Article 3.2.

intellectual property rights”<sup>32</sup> lest their incentives to innovate be hindered. SSOs recognise that an IPR owner must be free to seek compensation that is sufficient to maintain investment incentives.

Furthermore, given the voluntary nature of participation in SSOs, allowing IPR owners to seek adequate compensation is paramount to ensuring that those who own valuable proprietary technology remain involved in the standard-setting process.<sup>33</sup> Securing the participation of holders of valuable IPR allows SSOs to adopt standards based upon the best technological solutions. The adoption of a standard incorporating second-best technology would have potentially damaging consequences liable to negate the purpose of standardization itself.<sup>34</sup> It would thwart the standard’s acceptance by industry and consumers alike and lead to the development of incompatible products based on conflicting technologies.

The ability to license IPR on FRAND terms is, in this respect, a flexible tool which secures the availability of essential IPR without unduly constraining licensors.

### C. Meaning(s) of FRAND

Despite its prevalence in the IPR policies of the majority of SSOs, virtually no such policies define the FRAND commitment as specifying or dictating a particular

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<sup>32</sup> See the European Commission’s “Guidelines on the application of Article 81 of the EC Treaty to Technology Transfer Agreements” [2004] OJ C 101/2, at para. 8.

<sup>33</sup> “Given the consequences of SSO rules and the nature of voluntary participation, SSOs must tread warily. IP holders must believe that their interests will be protected in the standards-setting process, or they may choose not to participate. Indeed, the proliferation of voluntary special-purpose consortia in many technological areas means that a number of different SSOs, to a greater or lesser extent, “compete” with one another to develop standards. Thus, IP holders that believe that a particular SSO does not adequately protect their interests may be in a position to leave that SSO and participate in another SSO that provides better protection for their IP rights”. See Teece & Sherry, *supra* at note 22, p.3.

<sup>34</sup> See James C. DeVellis, “Patenting Industry Standards: Balancing the Rights of Patent Holders with the Need for Industry-Wide Standards”, (2003) 31 *AIPLA Q.J.* 301, 343 (“A simplistic view of the standardization conflict -- one that views the choice among patent policies as a choice between favoring patent holders and serving the public -- overlooks the fact that all sides will suffer if the standardization process fails to attract the best, most innovative technologies. If a standard-setting organization adopts an inferior standard because someone owns a patent on a superior technology and refuses to make it available on RF [royalty-free] terms, the standard-setting organization runs a real risk that the chosen standard will not be widely adopted. Certainly, the patent owner would not adopt the RF-based standard for itself, and other market participants may be willing to pay a licensing fee to access the superior technology. The inferior standard will thus compete with the patented technology, dividing the market, reducing that market’s network effects, and working against the very reasons standard-setting organizations were created.”) and 344 (“The patent policy of a standard-setting organization may affect members’ motivation for innovation. In the absence of an incentive allowing a patent holder to recover development costs, it is improbable that research and development will occur at the highest level in technological fields. ... Because patents frequently represent extensive research efforts and are expensive and time consuming to obtain, it is likely that if companies perceive that participation in the standard-setting process threatens patent portfolios, there will be a significant reluctance to participate in the process. Under a RAND system, a company has an incentive to compete for the adoption of its (often patented) standard. This competition in the standard-setting process leads to innovation and adoption of the optimal standard among the various options in the market.”).

licensing result.<sup>35</sup> There is a regular refrain in the literature that the meaning of (F)RAND is unclear and that SSOs do too little to explain the scope and nature of the concept. Whilst recognizing that the “non-discriminatory” aspect of the FRAND promise is straightforward, certain authors have cast doubt on the intelligibility and therefore effectiveness of the notions of “fair” and “reasonable” terms.<sup>36</sup> Others have gone so far as arguing, albeit without concrete support, that the supposedly vague (F)RAND promise is a “tool for misuse”.<sup>37</sup>

As explained above, the fact that FRAND is not further defined cannot be viewed as a shortcoming of SSOs IP policies. Much to the contrary, it is the very absence of a definition mechanically translatable into concrete terms that bestows on the FRAND commitment the suppleness required to achieve one of the fundamental aims of standardization, i.e. to ensure the widest availability of the technology embodied in the standard in the widest possible variety of circumstances. In this respect, FRAND is very much akin to a general clause. It is to be shaped and given meaning by reference to concrete objective and subjective circumstances. The specific meaning of FRAND can only be established in concrete situations, in particular taking into account the positions of the licensor and the licensee. In the following sections we try to flesh out further the meaning of the FRAND commitment and examine its different elements.

#### *1. Willingness to negotiate in good faith/no constructive refusal to license*

A FRAND commitment is intended to prevent an outright refusal to license or the setting of royalty rates and other terms and conditions so high as to suggest an intent by the IPR owner to do indirectly what it has committed not to do directly: refuse to license its essential IPR to other firms (i.e. a constructive refusal to license). A FRAND commitment therefore entails a promise by the IPR owner that it is prepared to engage in good faith negotiations with any company wishing to implement the standard with a view to reaching a licensing agreement that will be defined in light of all circumstances present between the two parties at the time of the negotiations.

#### *2. Fairness and reasonableness*

The question of the meaning of the terms “fair” and “reasonable” contained in the FRAND promise has absorbed the attention of several legal and economic commentators in the last few years. Most of the literature does not distinguish between “fair” and “reasonable”, in part due to the fact that the term “fair” is specific to the EU context (US-based SSOs tend to refer to the concept of RAND as one variant, not FRAND). Various meanings have been given to these terms.

<sup>35</sup> See Lemley, *supra* note 9, at 38.

<sup>36</sup> See Daniel Swanson & William Baumol, “Reasonable and Nondiscriminatory (RAND) Royalties, Standards Selection, and Control of Market Power,” 73 *Antitrust L.J.* 1, at 3 (“[a] RAND commitment is of limited value in the absence of objective benchmarks that make clear the concrete terms or range of terms that are deemed to be reasonable and nondiscriminatory”); Lemley, *supra* note 9, at 127 (“It is all well and good to propose that SSOs require licensing on reasonable and nondiscriminatory terms. But without some idea of what those terms are, reasonable and nondiscriminatory licensing loses much of its meaning”).

<sup>37</sup> See Skitol, *supra* note 23, at 2.

Several economists suggest that a reasonable royalty is the royalty that the essential patent holder could have obtained *before* a standard was adopted, i.e. on an *ex ante* basis. For example, Shapiro and Varian state that “[r]easonable should mean the royalties that the patent holder could obtain in open, upfront competition with other technologies, not the royalties that the patent holder can extract once other participants are effectively locked in to use technology covered by the patent.”<sup>38</sup> Similarly, Swanson and Baumol argue that “[i]f the primary goal of obtaining RAND licensing commitments is to prevent IP holders from setting royalties that exercise market power created by standardization, then the concept of a ‘reasonable’ royalty for purposes of RAND licensing must be defined and implemented by reference to *ex ante* competition, i.e., competition in advance of standard selection.”<sup>39</sup> This position, however, is based on the unsupported premise that standardization necessarily establishes market power beyond the “power” conferred by the patent itself. As will be seen below, this is not certain.

In our view, the question of what “reasonable terms” may consist of goes back to the second prerogative of the patent owner, i.e. its right to be rewarded for the innovative contribution made and to ask the price that the market is willing to pay for its IPR (i.e. how valuable the IPR is to others). As noted above, standardization does not deprive a patent owner of this prerogative. The only material consequences of making a FRAND commitment is that the IPR owner waives its rights to refuse to engage in good faith negotiations to license and to grant an exclusive licence. The specific terms of any such licence, however, are left to be determined by the parties to the negotiation.

Thus, FRAND does not impose any specific and concrete obligations on the licensor with regard to the actual level of royalties or any other terms and conditions provided for in licensing agreements, outside of the context of a constructive refusal to license. Rahnasto, for instance, explains that “the [FRAND] rule leaves the determination of exact terms for the parties to decide. This case-by-case determination allows parties to a particular licensing transaction to find their own interpretation of ‘fair and reasonable’.”<sup>40</sup> He further adds: “In connection with standardization, the term ‘fair and reasonable’ is usually understood as a reference to the economic reality. Generally, a licence is fair and reasonable if the terms would be acceptable in arm’s-length-negotiations.”<sup>41</sup>

“Fair and reasonable” licensing terms would therefore consist of those terms determined through fair, bilateral negotiations between individual IPR owner and standard-adopter in accordance with the market conditions prevailing at the time of such negotiations.

### 3. *Non-discrimination*

<sup>38</sup> See Carl Shapiro & Hal Varian, *Information Rules: A Strategic Guide to the Network Economy*, Boston: Harvard Business School Press, 1999, at 241.

<sup>39</sup> See Swanson & Baumol, *supra* note 36, p 5

<sup>40</sup> See Ilkka Rahnasto, *Intellectual Property, External Effects and Anti-trust Law*, Oxford University Press, 2003, para.4.105.

<sup>41</sup> *Id.* at para. 6.34.



Most authors consider that the “non-discriminatory” element of the (F)RAND promise is straightforward, requiring that IPR owners license similarly situated adopters on the same terms.<sup>42</sup> Discriminating between similarly situated competitors active in the markets for the product incorporating the standardised IPR would hinder the competitive process, as would allowing licensees to mix and match various provisions of individual licence agreements that reflect trade-offs between the original parties.

Another interpretation has been suggested by Swanson and Baumol, who argue that an SSO participant that competes downstream with other adopters in the market for the standardized product must treat its adopter-licensees no less favourably than it treats itself. In other words, it should charge licensees what it “implicitly charges itself for use of the [intellectual] property.”<sup>43</sup> Swanson and Baumol also suggest a principle for determining licence fees based on the “efficient component pricing rule” (ECPR), which they claim is “both necessary and sufficient for a licence fee to be competitively neutral in downstream markets and, therefore, at least on that basis, a necessary condition for that fee to be non-discriminatory. That is to say, any licence fee that substantially departs from the ECPR level can be deemed to violate the RAND requirement of non-discrimination.”<sup>44</sup>

4. *What is a FRAND royalty? Can it be determined in abstract?*

The semantic concern with the meaning of the FRAND promise is usually linked to the more practical question of how to determine whether a specific royalty level complies with a FRAND commitment. In our view, the answer to this question turns on the merits of the long-established model of bilateral negotiations between IPR owner and standard-adopter.

As seen above, a licence can be deemed fair and reasonable if its terms would be acceptable in arm’s-length-negotiations. These terms can therefore not be determined in a vacuum, without subjective reference to specific IPR owner and standard adopter. Moreover, royalties are but one element of the consideration agreed upon between the parties. It is therefore unfortunate that the misleading term “FRAND royalty” has become shorthand for the more accurate “Royalty rate established under an agreement negotiated in accordance with a FRAND commitment” Other elements susceptible of pecuniary valuation, such as a cross-licence to the licensees’ IPR or an upfront fee, are

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<sup>42</sup> Interestingly, Teece & Sherry have argued that the problem of non-discrimination should in theory be of greater importance to firms than the issue of fairness: “[F]irms would prefer not have to pay royalties, just as they would prefer not to have to pay their rent or their income taxes. But so long as every firm must pay, then the cost of the royalties can be built into the price of the product being sold, just as the cost of the raw materials and labor needed to make and sell the product is likewise built into the price. That is, prospective licensees may rationally be far more concerned about the ‘non-discriminatory’ aspect of the RAND requirement than they are about the ‘reasonable’ aspect. This, in turn, implies that from an economic and organizational behavior perspective, it is quite rational for SSOs to pay much more attention to the requirement that licenses be available on (unspecified) RAND terms than they pay to the question of what the ‘reasonable’ royalty rates should be.”) See Teece & Sherry, *supra* note 11, at note 149.

<sup>43</sup> See Swanson & Baumol, *supra* note 36, p. 11.

<sup>44</sup> *Id.*



taken into account and their value is often significantly higher than that the royalty itself.<sup>45</sup>

This does not mean that participants in the standard-setting process as well as outsiders will be unable to estimate the royalty level that a given IPR owner can be expected to charge for its essential IPR. In fact, patent owners have the incentive to engage in such *ex ante* licensing conduct because it affords a greater likelihood that their patented technology will be included in the standard.<sup>46</sup> As explained by the American National Standards Institute (ANSI), “[a] patent holder may have a strong incentive to provide an early assurance that the terms and conditions of the licence will be reasonable and demonstrably free of unfair discrimination because of its inherent interest in avoiding any objection to the standardization of its proprietary technology.”<sup>47</sup> In addition, patent holders demanding unreasonable and/or discriminatory terms and conditions may be expected to have great difficulty in convincing SSOs in the future to adopt standards incorporating their essential IP in the continually evolving technology marketplace.

In our view, the term “FRAND royalty” has no meaning. Where it is used as an abbreviated synonym for the royalty rate established under an agreement negotiated in accordance with a FRAND commitment, it obscures the fact that the royalty rate itself conveys little information as to the fairness and reasonableness of the overall licensing terms.

##### 5. *FRAND and injunctive relief*

A number of authors have argued that by making a FRAND commitment an essential patent holder waives its right to seek injunctive relief in case of infringement

<sup>45</sup> For example, Grindley & Teece have found that in the fields of semiconductors and electronics cross-licensing is more complex than the exchange of individual property rights. Patent holders in these industries generally license a portfolio of patents within a field of use due to the transaction costs associated with negotiating and monitoring infringement of individual patents and the needed freedom to design and manufacture without infringement. Negotiating a patent portfolio licence often involves negotiating a balancing of royalty payments according to the “value of the patent portfolios of each party” and the value of each party’s exposed product sales. Peter C. Grindley & David J. Teece, “Managing Intellectual Capital: Licensing and Cross-Licensing in Semiconductors and Electronics”, 39 (1997) *California Management Review*, 9.

<sup>46</sup> As explained by Richard Holleman, a former IBM executive with extensive standards experience in the U.S. and internationally: “I believe there is a misperception of how potential license terms are discussed. First, more often than not, patent owners provide statements that if they have patents that are essential to implementation of the standard being developed they will license such patents on reasonable nondiscriminatory terms. Then, outside the activities of the SDO, individual standards participants are able to approach the patent holder to inquire of available licensing terms. The patent holder is also free to publicly state what its license terms will be. To the extent the patent holder does not make such a statement, or declines to engage in discussions with individual standards participants, it is always the discretion of the standards participant to not support the patent holder’s technology or to propose an alternative technology to the standards developing committee. Ultimately, a consensus will establish what technology to support.” Submission of Richard J. Holleman, *Comments on Standards Setting and Intellectual Property*, to the Joint Hearings of the United States Department of Justice and the Federal Trade Commission Regarding Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy, 10 April 2002, 2.

<sup>47</sup> See ANSI Guidelines for Implementation of the ANSI Patent Policy at 3-4.

(the “waiver theory”). Dolmans, for instance, claims in a paper published in 2002 that “[o]wners of essential IPR for *de facto* or *de jure* standards (and especially those who have committed to FRAND licensing in order to obtain an exemption under Article 81(3) EC) should limit themselves to suits for damages and refrain from requesting injunctive relief against implementers.”<sup>48</sup>

More recently, Miller argues that “the RAND promise’s core function is to achieve a business organization goal that all SSOs confront - namely, removing the threat of post-adoption hold-up, thus inducing group production of a viable standards-based technology platform.”<sup>49</sup> According to Miller: “[e]very participating patent owner has, by making the RAND licensing promise, irrevocably waived its right to seek that most traditional of intellectual property law remedies, a court injunction against unauthorized access. The only relief a frustrated patent owner can seek against an adopter thereafter is the reasonable royalty expressly contemplated”. Although Miller is not always clear as to why he thinks that a FRAND commitment should mean that the essential IP holder who has so committed loses its right to seek injunctive relief, he seems to suggest that this is due to the fact that the threat of injunctive relief could negatively affect licensees’ incentives to make the necessary investments to implement the standards. Miller’s position is, however, based on the premise that U.S. courts would automatically grant permanent injunctions against the standard implementer’s use of essential IPR. Following the ruling of the U.S. Supreme Court in *eBay*, this no longer seems to be the case.<sup>50</sup>

Shapiro and Lemley have also argued that firms that hold patents that are essential to implement a standard should not be entitled to seek injunctive relief. However, their argument is based on economic and public policy grounds rather than on an analysis of current SSOs’ IPR policies and an interpretation of existing FRAND commitments. For instance, in a paper released in May 2006 relying on bargaining theory, they argue that “the threat to obtain a permanent injunction greatly enhances the patent holder’s negotiating power, leading to royalty rates that exceed a natural benchmark level based on the value of the patented technology and the strength of the patent.”<sup>51</sup>

While the above authors argue that holders of IPR embedded in a standard have or should have no right to seek injunctive relief and instead could only seek damages for infringement of those IPR, their position is grounded neither on statute nor case-law, as there is no such precedent for them to invoke. Instead, it merely reflects policy preferences that may or may not be deemed in future to have merit, but for which no historical consideration was given when most (F)RAND policies were adopted.<sup>52</sup>

<sup>48</sup> See Maurits Dolmans, “Standards for Standards”, (2002) 26 *Fordham Int’l L J* 163.

<sup>49</sup> See Joseph Miller, “Standard Setting, Patents, and Access Lock-in: RAND Licensing and the Theory of the Firm”, forthcoming 40 *Indiana Law Review* 2006.

<sup>50</sup> See *eBay Inc. v. MercExchange, L.L.C.*, 126 S. Ct. 1837, 1838-39 (2006).

<sup>51</sup> See Mark Lemley and Carl Shapiro, “Patent Hold Up and Royalty Stacking”, July 2006, *Stanford Law and Economics Olin Working Paper No. 324*, available at SSRN: <http://ssrn.com/abstract=923468>

<sup>52</sup> Lemley explicitly admits that he is “aware of no cases treating this issue”, stating that it is his “policy preference” that an IPR owner’s commitment to an SSO be construed as itself implying the grant of a licence, with the result that the IP owner is precluded from seeking an injunction for patent infringement. See Lemley, *supra* note 9

While the right of IP holders to seek injunctive relief is expressly guaranteed under US federal law,<sup>53</sup> it is also recognized under international trade law and EU law. Article 41(1) of the TRIPS Agreement provides that Members shall ensure that enforcement procedures as specified in TRIPS are available under their law so as to permit effective action against any act of infringement of IPR.<sup>54</sup> They also include the right to seek and obtain an injunction, i.e. a court decision whereby a party is ordered to desist from an infringement of an IPR. These injunctions can be imposed by way of preliminary measure (interlocutory injunction) (Article 50(1)) or as a measure resulting from a decision on the merits of the case (permanent injunction) (Article 44(1)). The first type of injunction is intended to provide an expeditious remedy to prevent an infringement and to deter further infringements. The second type of injunction is meant as a final remedy. The IP Enforcement Directive also states that EU Member States must ensure that in cases where there is a finding of an infringement of an IPR (Article 11) courts can issue both an interlocutory injunction intended to prevent an imminent infringement or to enjoin the continuation of the alleged infringements (Article 9), as well as a permanent injunction.<sup>55</sup>

The making of a FRAND commitment by an essential patent holder cannot be interpreted as an implicit waiver to its right to seek injunctive relief as recognized in the law. Such an interpretation would be in sharp contradiction to an established principle of law according to which a waiver of right can never be assumed lightly and must always be made explicitly or must at least be derived from circumstances that cannot possibly be interpreted any differently than the right owner's consent to waive its right. This very basic principle is recognized in all European continental<sup>56</sup> and common law legal systems.<sup>57</sup>

There is no provision whatsoever in ETSI's IPR Policy – nor in any other SSO IPR policy – that requires the patentee to undertake in writing that it will never apply for an injunction against infringers, for instance where the said standard adopter fail to subscribe to a FRAND licence. Consequently, there is no waiver by the patent holder to seek an injunction when good faith negotiations to agree on a FRAND licence have failed. ETSI and other SSOs only require patent holders to engage in good faith negotiations with a view to conclude a licence on FRAND terms.

Finally, although this paper is not the proper place to expand on the topic, in our view the policy considerations that underlie the “waiver theory” are misconceived. If an IPR owner were only able to obtain a judicial ruling establishing that its IPR has been

<sup>53</sup> See US Patent Act, Part III., Chap.29, Section 283.

<sup>54</sup> See Article 42 of the TRIPS agreement, *supra* note 27.

<sup>55</sup> See Directive 2004/48 of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights, O.J. L 157 of 30 April 2004.

<sup>56</sup> See, e.g., Belgian Supreme Court, 19 September 1997, *Arr. Cass.* 1997, 840 and French Supreme Court, 10 May 2000, Case No. 97-13907.

<sup>57</sup> See, e.g., *Schoon v. Troy Corp.*, C.A. No. 1677-N. 2006 Del. Ch. LEXIS 123, \*7 (Del. Ch. June 27, 2006) stating that “[t]here can be no waiver of a statutory right unless that waiver is clearly and affirmatively expressed in the relevant document,” and that no waiver existed where the contract at issue “did not in any way, explicitly or implicitly, contractually limit the information that must be provided [...] in the exercise of [...] statutorily protected rights under [8 Del. C. § 220]”.

infringed and if its only relief were an *ex post* award of damages, standards' adopters would be invited to take their chances in court and begin immediately using the invention without trying to obtain a licence. For those adopters, the worst case scenario would merely be a requirement to pay damages once a court had established the infringement. It would therefore be akin to compulsory licensing. Such an interpretation of the FRAND commitment would be a patent infringers' charter and would provide an incentive for implementers of a standard to refuse beforehand to enter into licence agreements on FRAND terms. In those circumstances, patentees would arguably prefer to settle for a licence on terms that would not provide a fair return on their investment, in other words terms which would not comply with FRAND, rather than face lengthy, onerous and uncertain court proceedings for the award of damages. This would amount to nothing less than an "*inverse patent hold-up*", this time committed by the standard adopter, who would be in a position to refuse the FRAND licence terms proposed by the patentee but still remain immune from injunctions for infringement. Patentees could even draw the conclusion that they should refrain from participating in future standard-setting processes. In both instances, consumer welfare and innovation would be significantly hampered.

#### **D. The Enforceability of FRAND**

Where difficulties in reaching a mutually satisfactory licence agreement do arise, a standard implementer may seek judicial relief and request that a court evaluate the reasonableness of the IPR owner's offer. The enforceability of the FRAND obligation results from the fact that it forms part of a private agreement between an IPR owner and a SSO. The IPR owner's refusal to enter into licensing negotiations may represent a breach of contract. The FRAND obligation may be provided in a SSO's bylaws, internal rules or IPR policies to which all members must adhere, and therefore stem directly from the IPR owner's membership of the particular SSO. It may also be provided in a written agreement whereby the SSO member undertakes to licence its essential IPR in respect of a specific standard.

A FRAND commitment may also be viewed as imposing a duty on the owner of an essential IPR to engage in licensing negotiations in good faith. Thus, an effort to impose terms that constructively preclude a standards adopter from gaining access to the technology incorporated in the standard might be deemed not to differ from an outright refusal to negotiate a licence. The laws of most jurisdictions recognize an obligation to negotiate in good faith, and if a prospective licensee can marshal evidence to prove the lack of good faith, it should have recourse to the courts of the competent jurisdiction. The burden of proof should, however, be placed on the prospective licensee. Otherwise, claims of unreasonable licensing terms would simply reflect a desire by the prospective licensee to avoid having to take a licence on terms it simply does not like.

In the context of assessing an IPR owner's good faith in negotiating a licence, as well as the equivalent obligation of the prospective licensee to act in good faith, a court might also assess what a FRAND licence might be by weighing all factors applicable to the specific situation. In some respects, this analysis might borrow from patent law principles for determining a "reasonable royalty" for the purpose of awarding damages.

Courts are called upon regularly to determine damages based on a reasonable royalty analysis arising from patent infringement actions. In such cases, (patent) courts evaluate all factors relevant to the particular circumstances. For instance, American courts today give great weight to 15 factors that were employed to determine a reasonable royalty in the seminal *Georgia-Pacific* case.<sup>58</sup> These factors included *inter alia* considering licence fees for similar patents as benchmarks, measuring the nature and scope of the patent, considering the next best alternative to the patent and any cost savings from using it as opposed to older modes or devices, evaluating the opinion testimony of qualified experts, considering the particular benefits to the licensee and the commercial relationship between IPR owner and prospective licensees.<sup>59</sup> The sine qua non, however, is prior licence agreements for the very patent(s) for which damages are being determined and the terms those licensees have agreed to previously. It must be understood, however, that such an analysis would not provide a static definition of FRAND; it would address specific circumstances and allow for a balanced consideration of all relevant and applicable factors.

#### E. FRAND Works

Contrary to the pronouncements of the theoretical literature that will be discussed below in Part IV below, SSOs' preference for a flexible system of fair, reasonable and non-discriminatory licensing of IPR essential to a standard appears to be justified. Clearly, it has allowed thousands of standard implementers and owners of IPR essential to the standard to reach mutually satisfactory agreements and SSOs to conduct valuable standardization activities in a number of vastly different fields.

That is not to say that the FRAND model will not give rise to occasional difficulties. Friction and even outright hostility can be expected to arise where companies must remunerate IPR owners for their use of those rights. There is a sort of love and hate relationship between innovators (licensors) and implementers (licensees). While implementers are keen to acquire technologies from innovators, they hate the idea of paying royalties to them until the relevant patents expire. This explains why some SSO members whose revenues are not primarily derived from royalties but rather from manufacturing or services seek to modify SSOs' IPR policies in order to alter the respective bargaining power of licensors and licensees in a way that is favourable to the latter. Although attempts to redefine FRAND have failed at ETSI, this is nevertheless a serious threat. As pointed out by Teece and Sheery, "[o]ne major public policy issue thus involves balancing the interests of intellectual property owners and the users of that intellectual property. Almost by definition, the latter are likely to outnumber the former; a patent has only one owner, but multiple manufacturers may need to use the patented technology. Hence, SSOs tend to be dominated by the demand side of the technology

<sup>58</sup> *Georgia-Pacific Corp. v. U.S. Plywood-Champion Papers Inc.*, 446 F.2d 295 (2nd Cir. 1971).

<sup>59</sup> For a more recent application of the multifactor *Georgia-Pacific* test, see *Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371 (Fed. Cir. 2001); also Roy J. Epstein & Alan J. Marcus, "Economic Analysis of the Reasonable Royalty: Simplification and Extension of the *Georgia-Pacific* Factors", (2003) 85 *Journal of the Patent and Trademark Office Society*, 7



market, and they are likely to adopt procedural and substantive rules that favour IP users over IP owners.”<sup>60</sup>

Despite these tensions, recent public submissions and statements made by SSOs seem to confirm that, with very few exceptions, current IPR policies have largely been successful.<sup>61</sup>

#### IV. PERCEIVED PROBLEMS WITH THE TRADITIONAL FRAND REGIME

While SSOs have significantly contributed to the development of, and the growing competition within, high-tech sectors, there are concerns that their activities could produce anti-competitive effects. We have seen that under traditional standard development procedures, members of SSOs are asked to disclose the IPR that they consider may be essential for implementation of a standard.<sup>62</sup> At the same time, these SSO members typically provide an assurance or commitment that, if their IPR are included in a standard and are therefore in fact essential, they are prepared to license them on FRAND terms, with or without monetary compensation.

Some commentators believe that these FRAND licensing commitments are insufficient.<sup>63</sup> It has been said that the current FRAND regime or more generally the procedures and IPR policies of the main SSOs would prove inadequate to prevent the emergence of a raft of perceived problems, which go by a variety of labels: anti-commons, patent thickets, patent hold-up and holdout, and royalty stacking. These problems would have as a common theme that as more and more firms take out patents on their inventions and standards in high-tech sectors embed patented technologies, the royalty costs of implementing standards will reach levels that make such implementation impossible. The cumulative royalties charged by essential patent holders would indeed be so high, the argument goes, that firms would no longer find it attractive to implement standards and thus useful innovations would not make it to the marketplace. In the following sections, we review the various theories underlying these gloomy predictions.

<sup>60</sup> See Teece & Sherry, *supra* note 11, at 1935.

<sup>61</sup> For instance, in observations submitted in the context of the FTC/DOJ public hearings on “Competition and Intellectual Property Law and Policy in the Knowledge-Based Economy”, the Standards Association of the Institute of Electrical and Electronics Engineers (IEEE-SA) stated: “Participation in standards developing committees is voluntary and disclosure of patents is based on the willingness of the individual participants to disclose any known patents whose use would be required in the practice of the standard and for such patents to be licensed on reasonable terms that are not unfairly discriminatory. With very few exceptions, this approach has worked very successfully for at least the past twenty years in the development of IEEE Standards by protecting the rights of the patent holder while meeting the need for standards that incorporate the best technology and which can be promulgated throughout industry on a worldwide basis.”. Cited by Teece & Sherry, *supra* note 11, at 28.

<sup>62</sup> ETSI defines “Essential IPR” as meaning “that it is not possible on technical (but not commercial) grounds, taking into account normal technical practice and the state of the art generally available at the time of standardization, [to] comply with a standard without infringing that IPR.” ETSI IPR Policy (version 23 November 2005) at Art. 15.

<sup>63</sup> See, e.g., Gil Ohana, Marc Hansen & Omar Shah, “Disclosure and Negotiation of Licensing Terms Prior to Adoption of Industry Standards: Preventing Another Patent Ambush”, (2003) 24 *European Competition Law Review*, 644; Robert A. Skitol, “Concerted Buying Power: Its Potential for Addressing the Patent Holdup Problem in Standard Setting”, (2005) 72 *Antitrust Law Journal*, 727.



## A. Anti-commons

The roots of propositions such as royalty stacking and patent thickets can be traced back to Heller and Eisenberg who, in a seminal article published in 1998, suggest that the combination of pioneer and follow-on inventors could lead to “too many” patents in biomedical research, ending in a “tragedy of the anti-commons”.<sup>64</sup>

The tragedy of the commons is a well known problem in joint ownership of physical property. It presupposes that multiple owners share property (such as a village commons on which sheep graze) and that none has the right to exclude any of the others from exploiting the common asset. The tragedy occurs from overuse – for instance, the villagers let their sheep graze so much that the field is completely destroyed.<sup>65</sup> The tragedy of the anti-commons is the mirror image of the tragedy of the commons. When multiple owners share the rights to property but every one of them has the right to exclude all others, the tragedy occurs from under-use. Heller and Eisenberg argue that an anti-commons tragedy could develop in biomedical research via one of two paths. First, the privatization of biomedical research through patenting might create “too many concurrent fragments of intellectual property rights in potential future products”. Alternatively, patent policy might permit “too many upstream patent owners to stack licenses on top of the future discoveries of downstream users.”<sup>66</sup>

The anti-commons claims have not gone unchallenged. Wagner argues that the hypotheses based on notions of a commons or public domain for research have overlooked important mitigating factors.<sup>67</sup> Two key points that the anti-commons theory ignores, according to Wagner, are (i) the difference between physical property and intellectual property and (ii) the difference between the short-term and the long-term. While the village green can be reduced to dust from too many grazing sheep, “in the information commons, no such zero-sum game exists.” For example, a patent on a particular form of hybrid corn may prevent other agribusinesses from exactly copying the corn, but they can learn the value of hybrid corn to the market by observing the patented product’s success and this can spur them to try other hybridization processes. Patenting should thus stimulate innovation.

Epstein and Kuhlik argue that Heller and Eisenberg “supplied little, if any empirical evidence for their assertion that the patent blockade dominates patent innovation.”<sup>68</sup> Much in the same vein, Kitch argues that Heller and Eisenberg’s arguments are “based on theory not experience” and he concludes that the “tragedy of the

<sup>64</sup> See Michael Heller & Rebecca Eisenberg, “Can Patents Deter Innovation? The Anticommons in Biomedical Research,” (1998) 280 *Science*, 698-701. This article was based on a more formal analysis by Michael Heller in “The Tragedy of the Anticommons: Property in the Transition from Marx to Markets,” (1998) 3 *Harvard Law Review*, 621.

<sup>65</sup> See Garret Hardin, “The Tragedy of the Commons” (1968) 162 *Science*, 1243-1248.

<sup>66</sup> See Heller & Eisenberg, *supra* note 64, at 699.

<sup>67</sup> See R. Polk Wagner, “Information Wants to be Free: Intellectual Property and the Mythologies of Control,” (2003) 1 *Columbia Law Review*, 995.

<sup>68</sup> See Richard A. Epstein & Bruce N. Kuhlik, “Is There a Biomedical Anticommons?” *Regulation*, Summer 2004, p.55. See also Richard Epstein, “Studying the Course: Property Rights in Genetic Material”, *The Chicago Working Paper Series*, March 2003.

anti-commons in this area of biomedical research is something that could have occurred as a matter of theory. It is not as yet, however, a problem that has been shown to have actually occurred. At least so far, the patent system appears to have been an experiment that has worked.”<sup>69</sup> As will be seen throughout this Part IV, there is a lack of evidence that the combined growth of patenting and IP fragmentation has brought innovation to a halt or at the very least reduced the level of innovation that would have been reached in the absence of this phenomenon.

Epstein and Kuhlik also point to patent holders’ self interest as another deterrent to behaviour liable to lead to a tragedy of the anti-commons.<sup>70</sup> Patent holders, at least non-vertically integrated ones, profit from licensing their patents. The authors therefore argue that “[r]efusing to deal is a loss of opportunity. In addition, the patent is always a wasting asset; not only is it limited in time, but even during the period of its unquestioned validity its holder faces the possibility that new patents, old patents that have expired, and new techniques that come into the public domain will erode its dominance. Those who do not deal will not prosper . . .”<sup>71</sup>

## **B. Patent Thickets**

In 2001, Shapiro picked up one of the threads from the anti-commons debate, and pronounced the existence of a “patent thicket” in “several key industries”.<sup>72</sup> The key extension here is the application of the anti-commons theory to high technology industries involved in standard setting. Shapiro argues that “[t]he need to navigate the patent thicket and hold-up is especially pronounced in industries such as telecommunications and computing in which formal standard-setting is a core part of bringing new technologies to market.”<sup>73</sup> To bolster this claim, Shapiro cites the dramatic increase in patenting and the potential implications in terms of IP licensing costs in these two sectors. According to Shapiro, “the danger of paying royalties to multiple patent owners is hardly a theoretical curiosity in industries such as semiconductors, in which many thousands of patents are issued each year and manufacturers can potentially infringe on hundreds of patents with a single product.”<sup>74</sup> Nonetheless, Shapiro does not present any evidence on licensing difficulties or “hold-up” within the semiconductor or telecommunications industries, instead referring to unsupported hypothetical results.

One of the key distinctions for patent thicket theory as applied to standard setting lies in the timing of licensing negotiations. For those technologies that are easy to invent around, Shapiro argues, “the patented technology contributes little if anything to the final product, and any ‘reasonable’ royalty would be modest at best.”<sup>75</sup> But after the

<sup>69</sup> See Edmund Kitch, “Comment on the tragedy of the Anti-Commons on Biomedical Research”, in S; Kieff, Ed., *Perspectives on Properties of the Human Genome Project*, Elsevier, 2003, at 271, 272.

<sup>70</sup> See Epstein & Kuhlik, *supra* note 68, at 55.

<sup>71</sup> *Id.*

<sup>72</sup> See Carl Shapiro, “Navigating the Patent Thicket: Cross Licenses, Patent Pools, and Standard-Setting,” in *Innovation Policy and the Economy*, Volume I, Adam Jaffe, Joshua Lerner & Scott Stern, Eds, MIT Press, 2001.

<sup>73</sup> See Shapiro, *supra* note 72, abstract.

<sup>74</sup> *Id.*, p. 7.

<sup>75</sup> *Id.*

technology is included in a standard or after potential licensees have started manufacturing, the patent holder “can credibly seek far greater royalties, very likely backed up with the threat of shutting down the manufacturer...” Shapiro sees little relief for this *ex post* “hold-up” aspect of patent thickets short of reforming patent law.

One clear limitation of Shapiro’s argument, however, is that standardization only grants additional market power and thus enhances the essential patent holder’s ability to charge royalties when the patented technology can be easily designed around. In the presence of a technology for which there is no alternative as is often the case in complex industries, the ability of the holder of essential patents to seek significant royalty rates exists prior to the adoption of the standard.<sup>76</sup> Standardization will certainly benefit essential patent holders as it stimulates the implementation of selected technologies and thus expands royalty revenues, but in the case of technologies for which there is no reasonable alternatives the ability of licensors to extract rents originates in the uniqueness of their patented inventions.

### C. Patent Holdout and Hold-up

A related, but distinct, strand of the literature focuses on non-cooperation between firms. Under patent holdout and hold-up theories, a firm with relevant IP emerges after a standard is set and demands high royalty payments. Thus, the focus here is not on the existence of too many rights spread across a great many rights’ holders, but rather on the questionable behaviour of one individual rights’ holder. In some instances, the firm participates in the standard setting process, at least to some extent, but either does not declare its relevant patents to the standardization body or declares them but then prices those patents unreasonably during *ex post* negotiations.<sup>77</sup> The strategy of participating in a standard but not disclosing IPR has become quite risky in recent years, since a number of firms engaged in such tactics have been prosecuted for patent misuse or breach of antitrust laws.<sup>78</sup> But, of course, some holdouts never directly participate in standard setting efforts. They instead watch the process from the sidelines and reveal their patents after a standard has been set.

Nonetheless, Shapiro argues that hold-up is a regular occurrence: “[t]he principal finding in this paper is that the current U.S. patent system systematically over-rewards the owners of weak patents [defined as those covering only minor inventions], especially

<sup>76</sup> But the incorporation of a patented technology into a standard does not always create market power. A patented technology may be so fundamental to the subject matter of a standard as to have no viable alternatives. A technology also may be so superior to its alternatives that a standards body may have no practical choice but to incorporate it into a standard. In either case, any market power that may be enjoyed by the patent owner would arise from the market’s demand for the invention and not from its incorporation into the standard. Moreover, the incorporation of the patented technology into a standard may not confer market power at all if alternative standards exist or if the standard otherwise fails to secure market acceptance.” See Joseph Kattan, “Disclosures and Commitments to Standard-Setting” (2002) *Antitrust* 22.

<sup>77</sup> See, for example, the discussion of Wang’s refusal to license its Single In-Line Memory Modules (SIMMs), after lobbying JEDEC to adopt the technology as a standard, in Janice M. Mueller, “Patent System Reform: Patent Misuse Through the Capture of Industry Standards,” (2002) *Berkeley Technology Law Journal*, 659.

<sup>78</sup> See e.g. *Rambus*, cited at footnote 182 below.

in the information technology sector where a single product can incorporate many patented features.”<sup>79</sup> He develops a model in which patent holders use the threat of injunction to push firms into paying more for a licence than the underlying technology deserves. The intuition is that a manufacturer facing plant shutdown or a costly product redesign will be willing to pay considerably more than a patent is “worth” to avoid those costs.<sup>80</sup>

Lichtman, however, offers a different view of the hold-up problem. He argues that at some point, a fragmentation of IP rights - so denigrated in the anti-commons theory - can actually be a good thing: “The large number of overlapping patents that makes it difficult for firms to license necessary rights at the same time dampens the costs associated with each specific failure to license [...] some resources will come into efficient use precisely because there are so many patent holders who each can plausibly veto another firm’s use.”<sup>81</sup> In other words, when a relatively large number of firms follow a patent holdout strategy, actual hold-up is far less attractive: “More patents means less money per patent holder. Less money, in turn, means less of an incentive for a firm to strategically delay in the hopes of being a patent holdout, and less of an incentive for an accidental patent holdout to actually bring suit.”<sup>82</sup>

#### D. Royalty Stacking

In essence, this theory is a less extreme version of the anti-commons problem. Rather than grinding all innovation to a halt, the many IPR distributed across numerous rights holders lead to an extremely costly and inefficient outcome

Royalty stacking can be explained simply. A firm wishing to produce a good, especially one embodying a technical standard, typically needs to acquire rights to the intellectual property underlying the good. When that good is comprised of multiple complementary components, each of which is necessary for production and each of which is covered by patents held by separate firms, the aggregate royalty fees for licensing all of the required pieces can, it is sometimes suggested, add up to a very large amount - perhaps so large that it is no longer economical for the manufacturing firm to make the good. This can allegedly happen even if each component’s patent is offered on “reasonable” terms. Stacking up so many reasonable terms would indeed lead to an unreasonable sum.

Four factors are implicit in the royalty stacking proposition. First, innovation must be sequential and cumulative, so that the patents are overlapping and interrelated.

<sup>79</sup> See Carl Shapiro, “Injunctions, Hold-Up, and Patent Royalties,” Working Paper, Draft 17 April 2006, <http://faculty.berkeley.edu/shapiro/royalties>.

<sup>80</sup> Mark Lemley echoes many of the same arguments, without any models: “Our goal should be to create a world in which patent owners can get paid for the technology they contribute, but in which what they get paid bears some reasonable resemblance to what they actually contributed.” See Mark Lemley, “Ten Things to Do About Patent Holdup of Standards (and One *Not* to),” working paper 2006.

<sup>81</sup> See Douglas G. Lichtman, “Patent Holdouts and the Standard-Setting Process”, *University Chicago Law and Economics, Olin Working Paper No. 292*, May 2006. Available at SSRN: <http://ssrn.com/abstract=902646> at 13.

<sup>82</sup> *Id.* at 10.

Otherwise, royalties would not stack up. Second, there must be many patents for a given product, such as one embodying a technical standard. Otherwise, the stack would be small and either inconsequential or relatively easy to negotiate out of. Third, the many patents must be held by numerous, distinct rights holders. Otherwise, negotiating the use of the many patents would be fairly straightforward, involving a limited number of bilateral negotiations. Fourth, the given licensee or all licensees must have no patents to trade with licensors. Otherwise, cross-licensing would drastically reduce the risk of royalty stacking.<sup>83</sup>

Lemley and Shapiro extend the discussion of patent hold-up and injunctions to royalty stacking. They note that “[a]s a matter of simple arithmetic, royalty stacking magnifies the problems associated with injunctive threats and hold-up, and greatly so if many patents read on the same product.”<sup>84</sup> Lemley and Shapiro argue that a manufacturer’s margin is a limiting factor in royalty negotiations, but that amount typically leaves considerable room for patent holders to overcharge compared to the value of the technological contribution.

To give credibility to their claims, Lemley and Shapiro present two case studies as empirical evidence of the existence of a royalty stacking problem.

They begin with third-generation (3G) cellular technology, which involves several standards and allegedly several thousand patents disclosed as “essential” for each one. Those patents are held by a fairly large number of firms - for WCDMA, one of such standards, forty-one firms in all are represented, although roughly 75% of the patents are held by just four firms. At least on the surface, then, WCDMA would be a candidate for royalty stacking. Lemley and Shapiro argue that a royalty stacking problem actually exists on the basis of one questionnaire conducted before the standard was adopted. Firms that had declared patents as relevant for WCDMA were asked, hypothetically, what they would like to charge for their patents if they were found to be essential to the standard. Summing all of the answers (and not everyone responded) yielded a cumulative royalty rate of 130%. While it is a striking figure, it is also extremely misleading. What a firm will quote as its desired royalty in a hypothetical survey is quite different from what it can negotiate with real licensees (see our discussion of the horizontal constraints constraining essential patent holders’ ability to charge high royalty rates). Moreover, at the time of the questionnaire, the standard was not yet settled, so it was unclear what IP would in fact be essential. In reality, WCDMA technology is being licensed and has achieved remarkable penetration today, which belies any extreme cumulative royalty predictions made several years ago. Not only were Lemley and Shapiro’s predictions based on an inaccurate analysis, but they proved to be wrong.

Lemley and Shapiro then turn to the Wi-Fi standard for wireless communications. In their Wi-Fi case study, the authors again incorrectly assume that the mere presence of a large number of rights holders necessarily implies a royalty stacking problem. They

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<sup>83</sup> This assumption raises the problem that in most high-technology industries, most licensors are also licensees, and therefore will be able to reduce any eventual royalty-stacking.

<sup>84</sup> See Lemley & Shapiro, *supra* note 51, at 2.



also note that one patent lawsuit related to the standard ended with a 6% royalty rate award. Certainly if every patent holder were able to charge 6%, there would be a royalty stacking problem. But that cannot be assumed. First, technological contributions vary substantially across patents, so knowing that one patent was awarded 6% by the courts tells us nothing about the remaining IP—that one patent might have been the most pivotal for the standard. Second, court awarded royalties often include an element of punishment to ensure that future infringement is deterred. Finally, Lemley and Shapiro note that several of the Wi-Fi standard participants have already formed a patent pool, meaning a substantial portion of the standard's IP is available in a single-price bundle.

#### **E. Conclusion on Perceived Problems**

The above developments show that a number of authors have relied on the anti-commons theory to predict adverse possible development in a range of industries. Other authors have expressed scepticism about the anti-commons theory and its possible implications.

The most striking aspect of our survey of the literature is that while the theoretical literature is fairly rich the empirical literature testing the validity of the royalty stacking and anti-commons theories in the real world is sparse and often not very rigorous. More importantly, the existing evidence is mixed. Researchers have found a possible and limited royalty stacking effect in the software industry,<sup>85</sup> a possible effect in the semiconductor industry,<sup>86</sup> though apparently mitigated by market mechanisms (cross-licensing),<sup>87</sup> and no effect in the biomedical industry.<sup>88</sup> A recent paper by Layne-Farrar and Padilla also investigates royalty stacking in a 3G standard for cellular telecommunications.<sup>89</sup> Building on the existing literature, they examine publicly traded firms operating in the cellular telecommunications industry and find - just as others participants in the industries mentioned above have - no consistent evidence of royalty stacking effects. First, they find no robust evidence of such a problem for upstream (R&D-only) firms. Moreover, the results for vertically integrated firms are inconclusive. While some empirical specifications suggest that increased fragmentation lowers vertically integrated firms' market values, other equally reasonable specifications find little or no effect. Perhaps most importantly, using a standard empirical measure of IPR fragmentation established by the literature, the authors find almost no evidence of any fragmentation of IPR within the 3G mobile industry - instead, the rights appear quite concentrated.

<sup>85</sup> See Michael D. Noel and Mark A. Schankerman, "Strategic Patenting and Software Innovation", *CEPR Discussion Paper No. 5701*, May 2006. Available at SSRN: <http://ssrn.com/abstract=922111>

<sup>86</sup> Bronwyn H. Hall and Rosemarie Ham Ziedonis, "The patent paradox revisited: an empirical study of patenting in the U.S. semiconductor industry, 1979-1995," *RAND Journal of Economics*, vol. 32 no. 1, Spring 2001.

<sup>87</sup> See Anne Layne-Farrar & A. Jorge Padilla, "Royalty Stacking in High Tech Industries: Separating Myth From Reality", 2006, not yet published. Shapiro, *supra* note 72, p. 13.

<sup>88</sup> See Heller & Eisenberg, *supra* note 64.

<sup>89</sup> See Anne Layne-Farrar & A. Jorge Padilla, *supra* note 87

## V. CURRENT ATTEMPTS TO RESHAPE THE FRAND MODEL: ENCOURAGING EX ANTE COMPETITION TO PREVENT EX POST OPPORTUNISM

This Part successively reviews the question of what the notion of *ex post* opportunism means (Section A), the proposals made to mandate potential licensors to disclose their licensing on an *ex ante* basis (Section B), the Swanson-Baumol model of *ex ante* auctions (Section C), the proposals for collective negotiations of royalties (Section D), the proposals for mandatory *ex ante* disclosure of licensing terms to SSOs (Section E), the proposals for voluntary *ex ante* disclosure of licensing terms to SSOs (Section F), the proposals to impose royalty-caps and allocation mechanisms (Section G). Section H presents our conclusions on the efforts to reshape the current FRAND model.

### A. What is Ex Post Opportunism?

As seen above, one of the criticised pitfalls of standard-setting is the alleged risk that owners of IPR essential to a standard will be able to unduly capture some of the economic value attributable not to the intrinsic value of those rights but to standardization itself. It is argued that if members of an SSO had known *ex ante* the standard being set the terms under which such IPR owners would license their rights, they might have chosen an alternative technology (provided, of course, such alternative technology existed). But once the standard has been adopted and implemented, switching to an alternative technology may have become too onerous for those practicing it. The argument continues that the bargaining power of the owner of essential IPR will have thus increased and that it may be able to extract more favourable licensing terms *ex post* standardization than would otherwise have been the case. This phenomenon is described as *ex post* opportunism.

As noted by Teece & Sherry, the theory of *ex post* opportunism is based on the premise that alternative technologies existed at the time of adoption of a particular standard, and that the SSO in question would have chosen one of them.<sup>90</sup> This is a significant limitation to the theory's validity, as in many instances of standard development no suitable alternative technology would have been found to exist. Another often overlooked premise of the theory is that if the licensing terms offered by the IPR owner *ex post* standardization are, on the whole, similar to those offered *ex ante*, then no opportunism can be deemed to have occurred - even if the members of the SSO were unaware of those terms when they cast their votes. Such terms would arguably also comply with the IPR owner's obligation to license on FRAND terms.

In the following sections we examine current proposals to surmount the allegedly ubiquitous risk of *ex post* opportunism and describe some of the concerns they raise.

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<sup>90</sup> See Teece & Sherry, *supra* note 11, p. 10 ("Whether the SSO would have in fact adopted another alternative had it known of the patent claims raises a complex counterfactual question: 'What would the SSO have done if the world had been different?' The answer is likely to be hotly debated, and depends on the particular facts of the standard at issue. The greater the advantages of the (patented) standard over the alternatives that were considered and rejected at the time the standard was originally set, the less likely it is that an alternative would, in fact, have been chosen.")

## B. The Ex Ante Approach

As mentioned, under traditional standard development procedures IPR holders are encouraged or required by SSOs to disclose the IPR that they consider may be essential for the standard. They also undertake to make licenses to their essential IPR available on FRAND terms. Licensing negotiations are, however, conducted outside SSOs either on an *ex ante* or on an *ex post* basis, depending on the willingness of the potential licensors and licensees to enter into such negotiations. In many SSO contexts, *ex ante* licensing negotiation thus already takes place on a *voluntary* basis. Proposals have, however, been made to adopt mandatory rules *obliging* potential licensors to disclose their licensing terms *ex ante* the standard being set. This would arguably allow potential standard implementers to gather information on the costs of implementing a given technology and introduce a degree of price competition between IPR holders.

These proposals are by and large based on a fundamental misconception, as they overlook the fact that *voluntary ex ante* disclosure of licensing terms by IPR owners is already largely the rule.<sup>91</sup> Neither the IPR policy of ETSI, for instance, nor the policies of most other major SSOs prevent IPR holders from disclosing and negotiating licensing terms before a standard is adopted. Much to the contrary, rights-owners have a strong incentive to enter into such *ex ante* negotiations as they increase the likelihood that their technology will be incorporated in the standard.<sup>92</sup> In order to have their technology embodied in the forthcoming standard these firms must find support among the members of the SSO. Consequently, they will seek to demonstrate the superiority of their technology, and may also want to show that the royalties they will charge if their technology is selected will be reasonable. If the process works properly, the firm offering the best overall package (in terms of technology, royalty rates and other licensing terms)<sup>93</sup> will find the greatest number of supporters and its technology will be incorporated in the standard. Furthermore, nothing prevents a standard implementer from approaching an owner of essential IPR to enquire what its licensing terms will be.

One advantage of *voluntary* disclosure is that it provides licensors and licensees with the ability to negotiate mutually advantageous terms specifically suited to the particular circumstances and their particular relationship. The danger with *mandatory* disclosure is that it leads to “one-size fits all” solutions, which would not only homogenize licensing conditions, but also distort the way standards development now fosters competition between and amongst implementing standards participants. In the absence of mandatory disclosure of licensing terms, standard implementers may make different strategic choices. For instance, an implementer may decide to negotiate a

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<sup>91</sup> See *supra* note 46.

<sup>92</sup> American National Standards Institute (ANSI) Guidelines for Implementation of the ANSI Patent Policy at 3-4 (“A patent holder may have a strong incentive to provide an early assurance that the terms and conditions of the license will be reasonable and demonstrably free of unfair discrimination because of its inherent interest in avoiding any objection to the standardization of its proprietary technology.”)

<sup>93</sup> Potential licensors and licensees may focus their negotiations on factors other than royalty rates, such as for instance cross-licensing of IPR or *ex post* implementation costs. It would, for instance, be too simplistic to believe that, because A offers on an *ex ante* basis a lower royalty rate than B, A’s technology will overall be cheaper than B’s. Differences in implementation costs may be a legitimate reason for B to charge higher royalty rate than A.

licence for patents - even before it is certain they will become essential - as early negotiations may allow it to obtain better licence terms than those which will be available after the standard is adopted. These advantageous licence terms would then give it a competitive advantage over a late-to-license implementer, whose costs of implementation might be higher. Compulsory disclosure of licensing terms would eliminate that competitive aspect of standardization processes.<sup>94</sup>

### C. The Swanson-Baumol Model of Ex Ante Auctions

Swanson and Baumol suggest that *ex ante* price competition could take place under a system of auctions run by the SSO.<sup>95</sup> They propose the following thought experiment to illustrate their *ex ante* approach. During the development phase of the standard, the SSO would hold an auction between different technologies. IPR holders vying to have their technology incorporated in the standard would submit offers to license it to downstream standard implementers for a fee (the royalty) calculated per unit of output. The downstream implementers would then choose which technology should win the auction and be embodied in the standard. Swanson and Baumol argue that the outcome of such an auction would provide a benchmark for what is a fair and reasonable royalty, as it would fully reflect the degree of competition between IPR holders existing prior to adoption of the standard. When two technologies compete against each other, competitive pressure would result in lower royalties since profits in licence revenues would be competed away. This reasonable royalty would of course be constrained by the price of the final product in the downstream market. If a proposed royalty were too high, it would result in downstream manufacturers producing at a loss and they would veto the technology during the auction.

As a thought experiment, *ex ante* competition through SSO-sponsored auctions is theoretically attractive and has the potential to lead to efficiency-maximizing outcomes. The model propounded by Swanson and Baumol has, however, some inherent limitations, most of which relate to its practical application.

The first limitation is that the model assumes that an auction between a limited number of firms owning a limited number of substitutable IPR will be possible. It therefore presupposes that competing technologies for every relevant portion of the standard will be available. However, a standard will generally comprise two categories of technologies: (i) those for which there were, at the time of its development, one or several alternatives and (ii) those for which there was no suitable alternative. While price competition may take place between competing technologies,<sup>96</sup> there is no place for such competition between peerless technologies for which no adequate substitute exists. In this (frequent) scenario, *ex ante* and *ex post* licensing will be identical, as holders of non-

<sup>94</sup> See Richard S. Taffet, "Ex Ante Licensing in Standards Development: Myths and Reality", AIPLA Spring Meeting, Chicago, Illinois, 4 May 2006, at 9-10.

<sup>95</sup> See Swanson & Baumol, *supra* note 36.

<sup>96</sup> See Skitol, *supra* note 23, at 734 ("a patent owner's own perspective on RAND terms can be expected to be quite different at the *ex ante* stage -- when it may be competing with *alternative* technology offerings for the proposed standard -- than *ex post* (after the standard has been adopted with the owner's technology and those alternatives are no longer viable") Emphasis added

substitutable technologies will have the same level of market power before and after a standard is adopted. This is one of the fundamental reasons why price competition has a lesser role to play in IP markets than in markets for (fungible) tangible goods. The model therefore offers few relevant insights in instances where complements are standardized, save for the possibility of reducing royalties for portions of the standard for which substitutes exist, but which will remain complementary to other IPR incorporated into the standard.

A second drawback of the Swanson and Baumol model of *ex ante* auctions, or of any *ex ante* approach for that matter, is that it may hinder innovation in those cases where the value of an invention is unclear at the moment of standardization. The significance, technical merit and full value of an invention covered by IPR may only be revealed over time, as the standard is implemented. Freezing royalty levels and other terms and conditions at a moment where imperfect information is available to SSO members has the potential to lead to sub-optimal technological choices.

The third limitation raises more serious concerns. The *ex ante* competition model proposed by Swanson and Baumol assumes that owners of essential IPR will seek to charge a royalty that is high enough to compensate their research and development efforts and low enough to win the auction and see their technology embedded in the standard. Some essential rights-holders may however behave strategically by, for instance, committing to charge very low royalties in order to exclude their competitors from the standard concerned.<sup>97</sup> As seen above, vertically-integrated IPR owners, for instance, have a distinct advantage over pure innovators.<sup>98</sup> Their revenues do not depend on the royalties charged given that they can take their profit downstream in the market for the products embodying the standard. By eliminating the pure innovator's technology, vertically-integrated IPR owners would stand to gain in at least two ways: (i) they would weaken a firm that would be a rival in future innovation races; and (ii) they would be best positioned to manufacture products implementing the standard embedding their technology. If such a scenario was to occur, and this is not a remote possibility considering the asymmetry of interests between SSO members, it would amount to transforming standard-setting processes into a mechanism which renders a judgement on comparative value, favouring one business model (vertical-integration) over another (pure innovator).

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<sup>97</sup> In fact, Swanson & Baumol assume that SSO members will not manipulate voting. See Swanson & Baumol, *supra* note 10, at 17 ("We further assume that the operative SSO voting (or other decision-making) process would not be unduly susceptible to being skewed or biased by one or more SSO members, much as many antitrust decisions in the area have effectively required.") Further, they assume the absence of vertically-integrated firms among essential patent holders. *Id.* at 19 ("We further assume that many downstream firms use the IP to produce perfect substitutes, but that patent owners do not also produce final products.") This of course changes the dynamics of the model as pure-innovators will have much lower incentives to game the auction process along the lines described above.

<sup>98</sup> See Part II, Section C above



## D. Proposals for Collective Negotiations of Royalties

Other authors suggest an *ex ante* regime based on joint negotiations of royalties between and among potential licensors and licensees before a standard is formally adopted.<sup>99</sup> The main difference with the Swanson and Baumol model discussed above lies in the fact that royalties would not be determined *ex ante* in an auction, but through collective action in the form of joint negotiations. It is this element of collective action which renders it particularly problematic.

### 1. Antitrust Concerns

Joint *ex ante* negotiations of royalties before the adoption of a standard would trigger serious antitrust concerns as they require that competing firms collaborate during royalty negotiations.<sup>100</sup> Such collaboration might involve restrictions of competition and could therefore fall foul of Article 81(1) EC on several grounds. First, the uniform licensing terms resulting from joint *ex ante* royalty negotiations would lead to a homogenization of the conditions of competition and could facilitate collusion in the downstream product market. As shown above, the existing system of *voluntary* disclosure of licensing terms and bilateral negotiations allows a degree of competition between standard implementers during the standardization process that would disappear with a system of joint negotiations. Second, joint negotiations would produce a “one-size fits all” approach preventing efficient discrimination in licensing conditions. Because standard implementers are not all equally situated (as, for instance, some have wider patent portfolios than others), charging a similar level of royalties to all of them would prevent the adoption of flexible deals that take into account their differences. Third, joint *ex ante* negotiations give rise to the risk that potential licensees would threaten to opt for an alternative technology unless the potential licensor offered a royalty they considered appropriate. Such a threat could amount to a collective boycott.<sup>101</sup> Finally, joint negotiations would also be likely to lead to serious anti-competitive exercises of oligopsony power. As in classic examples of the exercise of buyer power,<sup>102</sup> the negotiations would be primarily aimed at depressing the royalties (i.e. the price) which

<sup>99</sup> See, e.g., Ohana et al., *supra* note 63; See Skitol, *supra* note 23, at 727.

<sup>100</sup> See Swanson & Baumol, *supra* note 10, at 12-13 (“The standardization process typically involves consultation and agreements among firms that are often competing buyers of IP and also may be competing sellers in the downstream product markets. While joint decision making by competitors can sometimes promote the general welfare, it always entails the danger of misbehavior for anticompetitive purposes, such as the threat of behavior aimed at collusively reducing the price paid for intellectual property.”)

<sup>101</sup> *Id.* (“The SSO members would, in effect, say to the patent holder, ‘We will collectively reject a standard that incorporates your patented technology unless you agree to license it to us at pre-specified rates that we collectively find acceptable.’ In other contexts, this clearly would amount to a group boycott.”) For a perfect example of this risk, see Skitol, *supra* note 5, at 729, who considers that potential licensees should make use of their buyer power to extract what they consider as a reasonable royalty rate from a potential licensors (“A patent owner’s refusal to accept terms satisfactory to the group as a whole would cause the group to consider alternatives to the use of that owner’s technology.”).

<sup>102</sup> See OFT, “The Welfare Consequences of the Exercise of Buyer Power”, Research Paper 16, September 1998.

standard implementers would pay for gaining access to essential IPR.<sup>103</sup> This would diminish the licensors' incentives to invest in R&D and potentially hamper innovation.

A number of authors and antitrust enforcers have drawn attention to these antitrust risks and warned that any such joint *ex ante negotiations* would attract thorough scrutiny.<sup>104</sup> That is not to say, however, that such negotiations would necessarily be deemed to fall foul of antitrust rules or not to warrant examination under Article 81(3) EC. As noted by Chairman Majoras of the Federal Trade Commission (FTC), "joint *ex ante* royalty discussions that are reasonably necessary to avoid hold up do not warrant *per se* condemnation. Rather, they merit the balancing undertaken in a rule of reason review".<sup>105</sup> Such a rule of reason-type analysis would require weighing their anticompetitive effects against the procompetitive benefits expected.

## 2. Application of Article 81(3) EC

The question thus arises whether a proposed joint negotiations regime could benefit from the application of Article 81(3) EC.<sup>106</sup> As a detailed analysis of these requirements would go beyond the scope of the present paper, we will only address certain features which, in our view, militate against this type of cooperation satisfying the conditions of Article 81(3) EC.<sup>107</sup>

First, such a system would have an adverse impact on the rewards granted to licensors, in particular those obtainable by non vertically-integrated holders of essential

<sup>103</sup> See Teece & Sherry, *supra* note 11, at 1955 ("One key issue concerning patents is whether the patent holder must announce the terms for a patent license in advance. If so, there are potential antitrust concerns. Typically, the other participants in the SSO are the most likely potential licensees for the patent. This raises the potential for collusive, oligopolistic 'price fixing' in the technology market."). For a different view, see Skitol, *supra* note 23, at 739.

<sup>104</sup> See Skitol, *supra* at note 23, p.8. See also "Recognizing the procompetitive potential of royalty discussions in standard setting", Remarks of FTC Chairman Deborah Platt Majoras delivered at Stanford University, 23 September 2005, available at <http://www.ftc.gov/speeches/majoras/050923stanford.pdf>.

<sup>105</sup> *Id.* at 7.

<sup>106</sup> In a December 2005 press-release (IP/05/1565, 12 December 2005, "Commission welcomes changes in ETSI IPR rules to prevent 'patent ambush'"), the Commission took note of the fact that ETSI's General Assembly had established a group with the mission to examine possible changes to ETSI's standard-setting rules, in particular on the issue of *ex ante* licensing. It stated that it had "indicated in its Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements (see IP/04/470) that such *ex ante* licensing can have pro-competitive benefits when subject to appropriate safeguards" and that it would follow ETSI's forthcoming discussions with interest. This statement from the Commission cannot be interpreted as meaning that it is *prima facie* favourable to the joint negotiations approach or to any of the other reforms proposed by firms and commentators in the framework of this ETSI group. It only suggests that the Commission will carefully review the various proposals made to ETSI to ensure their compatibility with EC competition rules. In fact, the same press release made clear that the Commission had carefully reviewed under Article 81 a prior amendment to the ETSI IPR rules designed to limit the risk of "patent ambush" and that it had cleared it subject to some modifications of its content.

<sup>107</sup> See Swanson & Baumol, *supra* note 10, at 13-14 ("In the case of the typical SSO ... the integration and efficiencies needed to justify outright collective bargaining on royalties are in short supply."); See Shapiro in *Setting Compatibility Standards: Cooperation or Collusion?* *supra* note 8 ("While the law has typically looked for integration and risk-sharing among collaborators in order to classify cooperation as a joint venture and escape *per se* condemnation, ... the essence of cooperative standard setting is not the sharing of risks associated with specific investments, or the integration of operations.")

IPR. It would therefore not promote technical innovation or economic progress, but on the contrary negatively affect these objectives. Second, it is far from certain that end-consumers would benefit from what would essentially amount to an exercise in rent-shifting between innovators and implementers. There is no empirical foundation for the proposition that the payment of lower royalties to innovators would automatically lead to lower selling prices of the products implementing the standard. Prices at the end-user level depend on a complex number of factors, not least the level of competition between standard implementers at the downstream product level. Just as higher royalties could be internalised by such manufacturers, lower royalties would not necessarily be passed along to consumers. Third, it is not clear that a system of joint negotiations of royalty rates is necessary (i.e. the least restrictive means available) to achieve the objective allegedly sought by the proponents of this *ex ante* regime (i.e. preventing perceived risks of *ex post* opportunism and increasing certainty as to the implementation cost of a given standard). Finally, joint *ex ante* negotiations would eliminate the competition taking place between standard implementers under the current regime of voluntary disclosure of essential IPR.

#### **E. Mandatory Ex Ante Disclosure of Licensing Terms**

Recognising the significant antitrust liability inherent in joint negotiations, proposals have been made within SSOs for the adoption of a policy of mandatory *ex ante* disclosure of licensing terms. It should be noted that mere royalty rate disclosure is likely to be misleading. The picture it would convey would necessarily be imprecise, as the rate itself is but one of the various elements of consideration that need to be agreed upon by licensor and licensee. Under such an *ex ante* policy, SSO members would be required to disclose, prior to the adoption of a given standard, the upper limit of the consideration they would expect in order to license their essential IPR. Although the resulting antitrust risk is markedly lower than that arising from joint negotiations, mandatory *ex ante* disclosure also has the potential to fall foul of Article 81 EC. As seen above, it could give rise to uniform licensing terms and lead to homogenous conditions of competition. It could also facilitate collusion in the downstream product market. Finally, it could give rise to the risk that potential licensees engage in anticompetitive cooperation designed to put pressure on the potential licensor to lower its royalties. Such a threat could amount to a collective boycott.

Nevertheless, an analysis of such *ex ante* disclosure policies balancing their restrictive features with their possible procompetitive aspects could lead to a finding that their overall effect would not be anticompetitive. This assessment would however need to be conducted on a case-by-case basis.<sup>108</sup>

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<sup>108</sup> The DOJ's recent review of and decision not to oppose a patent policy submitted to its consideration by the VMEbus International Trade Association (VITA) illustrates the application of a rule-of-reason analysis to one such mandatory *ex ante* licensing regimes. VITA had requested a business review letter from the DOJ's Antitrust Division expressing its enforcement intentions regarding a proposed patent policy that will impose two requirements on holders of essential patents who participate in standard-setting activities conducted by VITA Standards Organization (VSO). VSO is a non-profit organization that develops and promotes standards for VMEbus computer architecture. First, the policy requires that patent holders make early disclosures of patents and patent applications that may be essential to implementing VITA standards

## F. Voluntary Ex Ante Disclosure of Licensing Terms

The final approach aiming to foster *ex ante* competition between technologies and increase transparency calls for the *voluntary* disclosure of licensing terms to SSOs prior to standard adoption. It differs from current practices of voluntary *ex ante* disclosure, which occurs between IPR owners and potential licensees, in that it entails entrusting SSOs with the task of collecting and organising the relevant data concerning the general licensing terms offered by each rights-owner. The broad range of licensing terms thus disclosed could for instance include the maximum royalty rate or rate range expected by the licensor for its essential IPR, possible cross-licensing demands, provisions on exhaustion of IPR and any other relevant licensing consideration it would voluntarily choose to disclose. Once the SSO in question collected these data, they would be made available to any interested member. This approach would significantly reduce the scope for possible antitrust concerns, as discussions of specific licensing terms would continue to occur outside the SSO.

## G. Cumulative Royalty Caps and Allocation Mechanisms

As has been reported in the specialized press, members of certain SSOs have put forward proposals calling for the imposition of price-caps on the royalties that could be cumulatively charged by all holders of IPR essential to a given standard.<sup>109</sup> Such a royalty-capping method would in turn require and be accompanied by a mechanism allowing those royalties to be apportioned amongst the different rights-holders. As will be seen below, these proposals raise a number of significant concerns

### 1. Royalty Caps

As seen above, firms participating in standard-setting do not share similar incentives when it comes to rewarding the IPR owners which developed the technologies to be embodied in a given standard. While pure innovators want to be substantially rewarded for the risks involved in developing their technology, pure implementers want to pay as little royalties as possible in order to maintain downward pressure on manufacturing costs. Firms that both innovate and manufacture may have more complex motivations. As standard implementers clearly outnumber pure innovators, it is hardly

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once they are adopted. Second, the policy requires that patent holders declare the maximum royalty rate and most restrictive non-price licensing terms they will require from those who must take a patent licence in order to implement the eventual VITA standard. These declarations are irrevocable, but patent holders may submit subsequent declarations with less restrictive licensing terms. Following an analysis under the rule of reason, the DOJ concluded that the proposed licensing policy would not restrict competition among patent holders and that it saw no grounds to oppose it. See DOJ's Business Review Letter to VITA, 30 October 2006, available at <http://www.usdoj.gov/atr/public/busreview/219380.htm>

<sup>109</sup> See for instance "Groups push for action on intellectual property", Financial Times, 21 November 2005 (reporting that a number of mobile carriers made proposals at ETSI to suggest that IPR terms should be agreed before a standard is even set, and argue in favour of putting a cap on the "maximum royalty payment from individual IPR users to the combined IPR holders"); The Register, "Mobile patents war shifts to email", available at [http://www.theregister.co.uk/2005/11/29/mobile\\_email\\_patents\\_war/](http://www.theregister.co.uk/2005/11/29/mobile_email_patents_war/); Andrew Updegrove, "Ex Ante Disclosure: Risks, Rewards, Process and Alternatives", *Consortium Standards Bulletin*, June 2006, Vol. V, No. 6, at 13.

surprising that attempts are made to constrain such royalties. One such method is the imposition of a cap on the cumulative royalties that can be collected for all the IPR essential to a standard.

The determination of a royalty cap requires by definition the determination of a ceiling which holders of essential IPR would not be allowed collectively to exceed. Although picking a maximum percentage to be allocated between essential IPR holders (e.g. 5% or 10% of the sales revenues of the products implementing the standard) could seem simple, it would involve complex dynamics. As illustrated by the example below, holders of essential IPR do not all place the same importance on the royalties they can obtain from their IP.

Let us imagine a scenario where firms A, B, C, D, and E hold essential patents for a given standard. Four of these firms (B, C, D, and E) are vertically-integrated, in that they manufacture products implementing the standard, while the fifth (A) is not involved in any form of manufacturing. While firms B, C, D, and E may be willing to charge each other very low royalties because they can take their profits downstream, firm A needs to charge higher royalties otherwise it would go out of business. This shows that the interests of holders of essential patent are not necessarily symmetrical. Note that in the absence of firm A, firms B, C, D, and E could opt for an entirely different strategy by significantly increasing their royalties in order to raise each other's costs. As is widely acknowledged, this strategy is nothing but a form of price-fixing. Instead of collectively increasing the price of their output (with a significant risk of detection), B, C, D, and E decide to increase the prices of the essential inputs they supply each other.<sup>110</sup> This will in turn increase retail prices, as well as these firms' profits. By contrast, where the vertically-integrated firms B, C, D and E compete in the product market with X, one or several pure manufacturers without IPR, they may have an incentive to cross-license each other whilst at the same time demanding prohibitive royalties from firm(s) X for their essential patents. They may thereby "squeeze" the pure manufacturer and exclude it from the market.

The picture becomes even more complex if you add to it SSO members which do not hold essential patents for the standard in question, but require such patents to manufacture products implementing the standard. These firms have an undoubted interest in paying the lowest royalties possible. When two competing technologies of equal performance can form the basis of a standard, imposing royalty caps is wholly unnecessary as standards implementers have the ability to play one technology against the other with the result that, in the absence of marginal costs, royalties could end up as low as zero. The situation is, however, different in the presence of a technology for which there is no alternative. In that case, it is argued that, absent collective action, holders of peerless essential patents will be able to charge significant royalties for their technology. As will be seen below,<sup>111</sup> their ability to command royalties is nevertheless

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<sup>110</sup> See, for an analogous example in the telecommunications sector, Damien Geradin & Michel Kerf, *Controlling Market Power in Telecommunications - Antitrust vs. Sector Specific Regulation*, Oxford University Press, 2003, at 46.

<sup>111</sup> See Sections VII A and VII B below.



limited by the presence of horizontal, vertical and institutional constraints, thereby removing any legitimate justification for a royalty cap.

In this latter scenario, vertically-integrated firms and manufacturing-only companies nevertheless now seek to impose a cap on royalties. The sole purpose and effect of such proposals, however, would be to crush pure innovators for which royalties represent the main or unique source of revenue. The imposition of a royalty cap would directly benefit manufacturing-only firms by lowering the costs of an essential input and would not affect vertically-integrated firms, which, as noted above, can take their profit downstream. In addition to the fact that it would raise serious competition concerns, this scenario would have two undesirable effects. One is an unjustified transfer of wealth from pure innovators to those engaged in manufacturing activities. The second is that that such transfer of wealth would drastically reduce innovation by starving innovators from the rewards they need for their costly and risky projects.

## 2. *Royalty Allocation*

Determining the maximum royalty level is not the only substantial problem that the implementation of royalty caps would occasion. It would also imply the adoption of a methodology to determine how royalties should be apportioned between the different holders of essential IPR. Valuing IPR is a notoriously difficult undertaking and a variety of methodologies have been proposed by academics, practitioners, policy-makers, and courts. From a general standpoint, there is no doubt that royalties should correspond to the “value” an essential IPR brings to a standard. Not all IPR are of an equal value. While some cover “earth shattering” inventions, others concern minor evolutions of existing technologies.

As will be seen in greater detail below,<sup>112</sup> the problem is of course that establishing the true value of a patent requires a complex assessment, and it is thus tempting to rely on simpler methodologies. Any such methodology would however prove extremely hard, not to say impossible, to implement in a context where multiple firms hold essential IPR and where numerous implementers require licences to practice a given standard. As standards evolve, the number of essential IPR can change rapidly over relatively short periods of time and hence the proportionate shares of essential IPR held by rights holders would also change. This would lead to a significant degree of instability of royalties, which would require regular review and would have to be recalculated – presumably on a regular basis – to take into account additional essential IPR resulting from the adoption of updates or upgrades to the existing standard or the issuance of pending patents. Such a system would make it totally impracticable for two companies to reach an agreement since the royalties the licensor would be allowed to charge would be ever changing. It would also make it impossible for a patent holder to forecast revenues and profits (and, hence, plan investments), since it would never know the future “value” of its patent holding. Royalty allocation would thus prove wholly inappropriate to the standards context.

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<sup>112</sup> See Section VII E below.

## H. Conclusion on Efforts to Reshape FRAND Model

SSOs have substantially contributed to the dissemination of innovative technologies and the enhancement of competition between products. It can be argued that, by allowing licensors and licensees to reach mutually satisfactory agreements, the prevailing twin policies of early disclosure and FRAND licensing of essential IPR have played a significant part in this.

The proposals to abandon this proved system described above misunderstand (or at least misrepresent) and exaggerate the perceived problems allegedly affecting traditional standard-setting processes. Should they be adopted, these proposals have in varying degrees the potential to: rigidify or simply eliminate the bilateral licensing negotiations between holders of essential IPR and implementers; eliminate the competitive aspect of the standardization process that allows firms to make different strategic choices as to the desirability to license patents before or after the adoption of the standard; create enormous implementation difficulties and delays resulting in significant welfare losses; give rise to serious competition law concerns; and, in most cases, lead to fundamentally flawed and unfair mechanisms of allocating royalties among holders of essential IPR.

## VI. COMPETITION LAW AND SSOs

As described above, most legal concerns stemming from standard-setting are connected with its effects on the use or enforcement of IPR. The relationship between competition law and IP law has been dealt with at length by many authors.<sup>113</sup> Both fields of the law share the common purpose of fostering innovation to the benefit of consumers. However, as IPR essentially give their holders the power to exclude competition, this relationship is often also one of tension.<sup>114</sup> A similar tension arises in the relationship between competition law and standard-setting activities. As noted by Hovenkamp, “while standard setting can enable firms to improve along all [...] avenues of business progress, it can also facilitate both of antitrust's twin evils: collusion and exclusion. When standards are created or enforced by competing producers, collusion is possible. When they are used to keep some producers out of the market anticompetitive, exclusion is possible”.<sup>115</sup>

<sup>113</sup> See e.g. Rahnasto, *supra* note 40; Stephen Anderman, *EC Competition Law & Intellectual Property Rights - The Regulation of Innovation*, Oxford University Press, 2000.

<sup>114</sup> Thomas O. Barnett, Assistant Attorney General Antitrust Division U.S. Department of Justice, “Interoperability between Antitrust and Intellectual Property”, Presentation to the George Mason University School of Law Symposium “Managing Antitrust Issues in a Global Marketplace”, September 13, 2006 (“[...] strong intellectual property protection is not separate from competition principles, but rather, is an integral part of antitrust policy as a whole. Intellectual property rights should not be viewed as protecting their owners from competition; rather, IP rights should be seen as encouraging firms to engage in competition, particularly competition that involves risk and long-term investment. Properly applied, strong intellectual property protection creates the competitive environment necessary to permit firms to profit from their inventions, which encourages innovation effort and improves dynamic efficiency.”)

<sup>115</sup> See Herbert Hovenkamp, “Standards Ownership and Competition Policy” at 5, available at <http://ssrn.com/abstract=889335>

The European Commission has been closely scrutinising IP policies of relevant SSOs with a view to preventing the adoption of rules that might infringe Article 81 EC.<sup>116</sup> As seen above, joint *ex ante* negotiation of royalty rates by members of an SSO, for instance, would trigger serious antitrust concerns, such as collusive price-fixing or the anticompetitive exercise of buyer power.<sup>117</sup> Under EC competition law, such collaboration would fall foul of Article 81(1) EC, as it would undoubtedly restrict competition, and it is highly unlikely that it could be justified under Article 81(3) EC.

Despite the extensive literature identified above devoted to the analysis of alleged problems with the current functioning of SSOs, we are not aware of any cases dealing comprehensively with the subject under EC Competition law. The situation appears to be different in the U.S., where several antitrust claims have been settled either by the judiciary or by the antitrust agencies.<sup>118</sup> As noted by Teece and Sherry, although the legal basis for intervention by antitrust authorities has “rarely been articulated clearly”,<sup>119</sup> the typical context of an antitrust case under U.S. antitrust laws “involves the claim that, by manipulating the standards-setting process (whether ‘actively’ in an effort to ‘capture’ a standard, or ‘passively’ by improperly failing to disclose a relevant patent), the patent holder has gained improper market power in the technology market”.<sup>120</sup> These claims, generally allegations of anticompetitive attempted monopolisation, therefore concern SSOs’ processes rather than behaviour unconnected to the same. Antitrust law has therefore mostly been called upon to deal with issues arising from the implementation and alleged manipulation of SSOs IP policies and rules. Due to the difficulties inherent in interpreting and enforcing these rules, and by virtue of the fact that antitrust law “does not normally impose a requirement of minimum process for private decisions”<sup>121</sup> such as the ones adopted by the generality of SSOs, most commentators view the role of antitrust law in this context with suspicion and caution that antitrust scrutiny should be limited.<sup>122</sup>

<sup>116</sup> See Letter from Angel Tridacete, DG Competition, to Karl Heinz Rosenbrock, ETSI Director-General, of 26 April 2005, referred to in ETSI Directives, Version 20, July 2006, available at <http://www.etsi.org>

<sup>117</sup> See Swanson & Baumol, *supra* note 36, at 12-13 (“The standardization process typically involves consultation and agreements among firms that are often competing buyers of IP and also may be competing sellers in the downstream product markets. While joint decision making by competitors can sometimes promote the general welfare, it always entails the danger of misbehavior for anticompetitive purposes, such as the threat of behavior aimed at collusively reducing the price paid for intellectual property.”).

<sup>118</sup> See for instance *Rambus*, *supra* note 1; the FTC’s decision in the Dell case, *In re Dell Computer Corp.*, No. 931-0097 (F.T.C. 1995); *Broadcom Corp. v. Qualcomm Inc.*, No. 05-3350 (D.N.J.); or the U.S. Supreme Court’s decision in *Allied Tube & Conduit Corp. v. Indian Head, Inc.*, 486 U.S. 492 (1988).

<sup>119</sup> See Teece & Sherry pose the question: “Is the concern one of a conspiratorial agreement under section 1 of the Sherman Act, or monopolization or attempted monopolization under section 2 of the Sherman Act? If so, presumably the challenger must establish the other elements of any such claims.” See Teece & Sherry, *supra* at note 22, p. 27.

<sup>120</sup> *Id.* at 27.

<sup>121</sup> See Lemley, *supra* note 9, at 137.

<sup>122</sup> Teece & Sherry, *supra* note 22, p. 28 (“In particular, we are concerned that antitrust intervention may reduce the clarity of the rules, thereby making participation in SSOs more risky and reducing the willingness of firms with valuable IP (and which therefore presumably have much to contribute to selecting the appropriate standard) to participate. If the SSO’s rules are unclear, the obvious public policy solution is to encourage SSOs to adopt clearer rules on a going-forward basis. Most significantly, we believe that intervention runs a significant risk of slowing down the standards-setting process, thus delaying the adoption of new standards and new products made in accordance with those standards, to the detriment of

By contrast, we are unaware of any successful U.S. antitrust claims in the context of standardization based on the proposition that the standard enhances the right holder's market power *per se* and enables it to charge excessive royalties for its IPR. There are sound antitrust policy reasons for this, not least the fact that, in the absence of any manipulation of the standard-setting process, any additional value to those lawfully-granted IPR resulting from their inclusion in a standard should be of no concern to antitrust law.

In this paper we focus on the applicability of Article 82 EC to potential claims arising in the context of standard-setting and attempt to ascertain whether it could lead to different results from the ones observed in the U.S. In particular, we consider whether the licensing of IPR reading on a standard can give rise to claims of exploitative abuse under Article 82 EC. To that effect, we began by examining one of the fundamental aspects of SSOs' IP policies i.e. the requirement for companies whose IPR are incorporated into a standard to license those IPR on (F)RAND terms.

## VII. CAN CERTAIN LICENSING PRACTICES OF STANDARDISED TECHNOLOGY AMOUNT TO EXPLOITATIVE ABUSES UNDER ARTICLE 82 EC?

The enforcement of Article 82 EC presupposes that a company be found to hold a dominant position in one or several clearly defined market(s). The first step in ascertaining whether the practices of a company regarding the licensing of IPR incorporated into a standard may fall foul of Article 82 EC is therefore to define one or several relevant market(s) for the purposes of EC competition law<sup>123</sup>

The concept of dominance under Article 82 EC relates to a position of economic strength.<sup>124</sup> A firm will enjoy such position where it does not face significant competitive pressure and is therefore able act independently. A proper market definition provides the necessary framework to identify the competitive constraints facing an undertaking, in particular demand substitutability, supply substitutability, and potential competition.<sup>125</sup>

### A. Market Definition in Technology Markets

In the context of technology covered by IPR incorporated into a standard, the primary relevant market consists of the market for the licensed technology and its

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consumers and of society generally."); Michael Camer, "Why Antitrust Should Defer to the Intellectual Property Rules of Standard-Setting Organizations: A Commentary on Teece & Sherry", (2003) 87 *Minnesota Law Review* 2019 ("Although there is a role for antitrust in the analysis of SSO rules, long-settled antitrust jurisprudence dictates that it is only a limited role.")

<sup>123</sup> See ECJ, 27/76 *United Brands Company and United Brands Continental BV v Commission* [1978] ECR 207 at § 10.

<sup>124</sup> See ECJ, 85/76 *Hoffmann-La Roche & Co. AG v Commission* [1979] ECR 461 at §38. See also European Commission, DG Competition, "Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses", December 2005, at 11, available at <http://ec.europa.eu/comm/competition/antitrust/others/discpaper2005.pdf>

<sup>125</sup> See European Commission, "Notice on the definition of relevant market for the purposes of Community competition law", (1997) O.J. C 372, at 13.

substitutes. These will consist of other technologies which by reason of their characteristics, price (i.e. royalties) and intended use are regarded by the licensees as interchangeable with or substitutable for the licensed technology. However, the key to ascertaining whether such technologies are substitutable for the licensed technology is to examine whether licensees could switch to them in response to a small but permanent increase in the relative price, i.e. the royalties, charged by the IPR owner for its standardised technology.<sup>126</sup> If licensees of the standardised technology can switch to alternative technologies, patented or otherwise, then these alternative technologies form part of the relevant product market

Although the conceptual framework appears not to differ significantly from that used to define more traditional product markets, defining technology markets is a more complex undertaking. The intricacy of the task is compounded when the technology at issue forms part of a standard. The first element that needs to be considered when attempting to define relevant markets for standardised technology is the fact that, in practice, the implementers of a standard generally license a company's entire portfolio of essential IPR for a given standard. They do not license individual IPR on a stand-alone basis. Second, in most circumstances different firms hold complementary IPR essential to a given standard. Companies wishing to practice the standard must therefore obtain licences for those essential IPR from all these firms. As these companies' IPR will typically cover different aspects of the standard, such IPR are complements, not substitutes. This obviously has profound implications for market definition. Third, as will be seen below, holders of essential IPR contained in a standard are subject to a number of vertical, horizontal and dynamic competitive constraints with substantial implications both for market definition and for the assessment of dominance. Moreover, these constraints will differ significantly according to the role played by the IPR owner in the standardization process, i.e. depending on whether the IPR owner is a vertically-integrated firm active in the product market or a pure licensor which does not supply the end-product.

The identification of the vertical competitive constraint resulting from the ability of final consumers to switch between devices using different access technologies is fundamental to market definition in the context of technology licensing. In other words, the existence of a downstream market for the *product* incorporating the standardised technology is paramount to any appropriate definition of the relevant upstream *technology* market. The potential for demand side substitution by consumers of the final product is thus yet another element with significant implications for market definition.

If a hypothetical monopolist licensing essential IPR raised the price of those IPR, i.e. the royalty, some of the increase in costs would be passed on by the manufacturer to final consumers, who could switch to products using alternative technologies.<sup>127</sup> If there are sufficiently close substitute products, then end-users will switch in response to an

<sup>126</sup> The conceptual framework for defining such technology markets is set out, *inter alia*, in the European Commission's "Guidelines on the application of Article 81 of the EC Treaty to Technology Transfer Agreements" *supra* note 32 at 22.

<sup>127</sup> Economic theory and empirical analysis suggest that there is always pass through of costs to at least some extent, except in highly idealised circumstances



increase in prices, making the initial increase in royalties unprofitable to the IPR owner. The important role of downstream competition in constraining upstream market power in technology markets is well established.<sup>128</sup> Furthermore, prices for the final product may be constrained even if alternative products are attractive to just some customers. The European Commission's Discussion Paper on Article 82 EC makes it clear that it is not necessary that all customers consider the products to be substitutable for them to belong to the same product market. What matters is that there exist a sufficiently large number of marginal customers who would consider switching to alternatives if the price of end-products were to increase by a small amount.<sup>129</sup> These vertical constraints must be thoroughly examined in order for the relevant market(s) to be correctly defined.

## B. Dominance in Technology Markets

Pursuant to the legal standard established by the European Court of Justice ("the ECJ"), dominance arises where a firm has the power to behave to an "appreciable extent independently of its competitors, its customers and ultimately of the consumers" allowing it to "prevent effective competition being maintained on the relevant market".<sup>130</sup> The key issue in the assessment of the existence of a dominant position is therefore the identification of the competitive pressures to which a firm is subjected. Firms that face significant competitive constraints are not dominant due to the fact that they cannot behave independently of their customers. This holds true whether they have any competitors in the market for the goods or services provided to such customers or not.

It has been argued that holders of IPR essential to practice a standard automatically enjoy significant market power conferred by the process of standardization.<sup>131</sup> The claim is that once a given technology becomes part of a standard, competition between technologies for the essential parts of that standard ends. No longer constrained by such competition, each owner of IPR essential to the standard would *ipso facto* enjoy market power akin to dominance in the market(s) for the licensing of those IPR. It is claimed that this effect would be compounded by the "hold-up" of potential licensees locked into the standardised technology by virtue of the substantial investments made for its implementation. As will be seen below, these positions ignore a variety of horizontal, vertical and dynamic competitive constraints which preclude an automatic finding of dominance on the part of an owner of IPR essential to a standard and can therefore not be sustained.

<sup>128</sup> The Commission's Guidelines on the application of the TTBE recognize this point, stating: "If the downstream product market is competitive, competition at this level may effectively constrain the licensor. An increase in royalties upstream affects the costs of the licensee, making him less competitive, causing him to lose sales." See *supra* note 32, §23. See also Swanson & Baumol, *supra* note 36, at note 17 ("There may be no market power in the technology market even if the alternative technology set is small if there is vigorous rivalry from substitute goods in the market for the final product that makes use of the technology").

<sup>129</sup> See Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses, *supra* note 124, §18.

<sup>130</sup> See *Hoffmann-La Roche & Co AG v Commission*, *supra* note 124.

<sup>131</sup> See Marcus Glader and Sune Chabert Larsen, "Article 82: Excessive pricing – An outline of the legal principles relating to excessive pricing and their future application in the field of IP rights and industry standards", *Competition Law Insight*, 4 July 2005, p.3

*1. Vertical Constraints Stemming from Competition between Rival Standards and Non-Standardised Substitute Products*

The adoption of a standard by a SSO may end effective competition between rival technologies for inclusion in that specific iteration of the standard. However, it will not affect competition between rival standards, either in the guise of downstream competition between substitutable end-products compliant with different technology standards or as competition between standards at the upstream licensing level. As seen above, competitive constraints arising at either the upstream or downstream level will prevent an owner of essential IPR from holding a dominant position in the technology licensing market(s). If licensees of the standardised technology can switch to alternative technologies, covered by IPR or otherwise, the IPR owner will not be able to exercise monopoly power as it will lose sales if it tries to increase price. Similarly, if end-customers can easily switch to substitute products that do not use the licensed technology, such competition between end-products will represent a significant competitive constraint on the owner of IPR essential to a standard. This will hold true whether the substitute products comply with any given standard or not.

These vertical competitive constraints will not affect every IPR owner in the same manner and will vary in accordance with firms' pricing incentives. They will have a weaker effect on vertically-integrated IPR owners than on pure licensors. The reasons behind this finding are intuitive. Whereas vertical integration eliminates the so-called vertical double marginalization problem,<sup>132</sup> which should lead to lower prices, there is an additional effect stemming from vertical integration that tends to increase price. A vertically-integrated IPR owner may have an incentive to raise the royalty it charges at the upstream level, which does not affect its own production costs, to raise the costs of its rivals on the downstream product market. By raising the costs of its downstream rivals the vertically-integrated firm increases its downstream market share and its profits. In many cases, non-vertically integrated IPR owners have incentives to charge lower royalties for their essential IPR than their vertically integrated counterparts would optimally charge.<sup>133</sup>

*2. Horizontal Constraints Stemming from the Complementary Nature of IPR Incorporated in a Standard*

As seen above, standards usually comprise complementary essential IPR owned by numerous firms. In order to practice the standard, implementers must obtain licences from all such owners of complementary IPR. If other complementary IPR owners charge high royalty rates, a given firm will not be able unilaterally to set a high royalty rate for its IPR. This will be the case even if the company in question holds a monopoly over a given technology. When individually setting their prices, owners of essential IPR will inherently take into account prices set by other owners of complementary IPR, as the market – i.e. the prospective licensees – will only bear a certain overall price level.

<sup>132</sup> This occurs where different firms are active at different levels of the production chain for the same product. Each will mark up the product in order to make a profit, thus leading to a "double margin".

<sup>133</sup> This phenomenon is explained in detail by Klaus Schmidt in "Licensing Complementary Patents and Vertical Integration" (2006), mimeo.

Owners of IPR essential to standard are thus horizontally price-constrained and this absence of pricing independence will preclude a finding of dominance under Article 82 EC.

### 3. *Dynamic Constraints*

The ability of owners of IPR essential to a standard to price independently will also be affected by dynamic constraints stemming from the dynamic nature of standard-setting. As noted above, competition between members of SSOs usually takes place not only before those SSOs adopt a standard but also after such adoption, i.e. for the inclusion of new releases and next generation technologies. If a firm's technology is included in a standard, that firm will face constraints in pricing any associated IPR because it will continue to depend on the SSO for its position as the standard evolves. The dynamic and evolving nature of standards gives participants in SSOs a number of opportunities to "punish" companies that have previously set what are considered to be excessive royalties. First, SSO members may be able to choose not to include a company's contributions in evolutions of the standard.<sup>134</sup> Second, SSO members may be able to choose not to include a company's contributions in future generations of the standard (or in other unrelated standards). Third, if companies gain a reputation for taking advantage of situations where their patents are implicated by a standard, SSOs may begin to insist that the firm commit itself *ex ante* to the precise terms on which it will make its patents available, before including new patents in an upgrade or new generation. This disciplining effect may come as a decision not to include IPR holders' technology in future generations of the standard or even in unrelated standards.

### 4. *The Role of Dynamic Competition*

The final element which must be addressed when assessing dominance in the standard-setting context is not specific but appears inextricably linked to it insofar as technology standards and licensing occupy a preponderant place in dynamically competitive markets such as the ICT sector. These industries are characterised by dynamic competition for the market whereby drastic innovation makes market leadership highly contestable. By contrast, in other industries, competition takes place primarily through standard price competition and, perhaps, also via incremental innovations.<sup>135</sup>

<sup>134</sup> See Teece & Sherry, *supra* note 11: "[I]n many industries in which standards play an important role, the fast pace of technological change drives the continual redesign and reengineering of products. For example, the product life cycle in the semiconductor industry is reported to be as low as ten months. Therefore, even if there may be some 'lock-in' of earlier designs, once the existence of the patent is disclosed, the SSO has the opportunity to revise the standards, and manufacturers have the opportunity to redesign their products to avoid incorporating the patented features. In other words, the extent of 'lock-in' may be limited by the pace of technological change."

<sup>135</sup> For a detailed analysis of the competition policy implications stemming from dynamically competitive industries, see Christian Ahlborn, Vincenzo Denicolò, Damien Geradin, and A. Jorge Padilla, "DG Comp's Discussion Paper on Article 82: Implications of the Proposed Framework and Antitrust Rules for Dynamically Competitive Industries", 31st March 2006, available at <http://ec.europa.eu/comm/competition/antitrust/others/057.pdf>

Dynamic competition consists of a series of races for market dominance. Firms do not compete by slightly undercutting each other but engage instead in what economist Joseph A. Schumpeter described as a “perennial gale of creative destruction” that “strikes not at the margins of the profits of the existing firms but at their foundations and their very lives.”<sup>136</sup> In these industries, competition takes place for the market rather than in the market. Firms take part in a race for innovation, striving to introduce new and superior products that will win the market and achieve massive transfers of market shares. In other words, competition comes not from readily available substitutes but from new, innovative products not yet present in the marketplace. Once a market is won, the ensuing dominance will afford substantial benefits but will be fragile and temporary. It can only be maintained if the dominant firm continues to innovate, as the initial race is succeeded by a new wave of investment by rival firms to displace the leading technology with something superior.

The implications of such dynamic competition for the assessment of dominance must be carefully considered. The competitive constraints faced by any incumbent stem not only from existing competitors but also from significant forces outside the market. The underlying analysis should be adapted to reflect the special characteristics of these industries. Given their fleeting nature, market shares should not be blindly used as relevant indicators of market power in those industries and supply-side constraints should be carefully considered at the assessment stage. A firm which may *prima facie* appear to enjoy a dominant position could, upon careful consideration, be found not to possess any significant market power justifying the intervention of competition authorities.

### C. Exploitative vs. Exclusionary Abuse under Article 82 EC

Although such a classification is to some extent artificial, a distinction is usually made between exclusionary abuse of a dominant position, covered by Article 82(b) EC and exploitative abuse, covered by Article 82(a) EC.<sup>137</sup> Exclusionary abuse involves behaviour by dominant firms which is likely to have a foreclosure effect on the market. Foreclosure arises where firms with market power are able to deny profitable expansion by existing competitors or to prevent access to the market to potential competitors, ultimately harming consumers.<sup>138</sup> By contrast, exploitative abuse involves behaviour which “directly or indirectly impos[es] unfair purchase or selling prices or other unfair trading conditions”.<sup>139</sup>

Contrary to well-established principles of US antitrust law, EC competition law is concerned with dominant firms charging monopoly prices even in the absence of

<sup>136</sup> Joseph A. Schumpeter, *Capitalism, Socialism and Democracy*, Harper Collins Publishers 1984 ed., 1942, page 84.

<sup>137</sup> See Robert O'Donoghue & A. Jorge Padilla, *The Law and Economics of Article 82 EC*, 2006 Hart Publishing, p. 194.

<sup>138</sup> See Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses, *supra* note 124, §1.

<sup>139</sup> See Article 82(a) EC.

exclusionary conduct.<sup>140</sup> However, as enforcer of the competition rules provided in the EC Treaty, the European Commission has stated on numerous occasions that it does not consider it to be its role to become a price-regulator.<sup>141</sup> Such policy statements reflect the Commission's margin of prosecutorial discretion in an area of competition law fraught with practical difficulties and it is therefore not surprising that cases of excessive pricing are rare and controversial. It can be argued that absent exclusionary behaviour, monopolistic rents should be of no concern to antitrust regulators or courts.

The first argument against the very notion that excessive prices should be dealt with by competition law is an economic one. High prices may enhance welfare where they stimulate innovation and investment. Firms will only engage in high-risk investments when they know that they will gain substantial returns in such investments lead to the creation of a valuable product or service. Furthermore, high prices tend to be self-correcting as they attract market entry, therefore obviating any need for regulatory interference.<sup>142</sup>

The second argument is a practical one. It is extremely difficult to determine whether prices are excessive. According to the legal test first set out by the ECJ in *United Brands*, a price will be deemed excessive where it has no reasonable relation to the economic value of the product supplied.<sup>143</sup> This raises the fundamental problem that competition authorities and courts must decide at which point a price bears no reasonable relationship to the economic value being provided. The lack of clearly defined and accepted methods for determining the economic value of a product compounds the difficulty of the enterprise.<sup>144</sup>

<sup>140</sup> A recent ruling by the U.S. Supreme Court confirmed the difference in approach, stating: "The mere possession of monopoly power, and the concomitant charging of monopoly prices, is not only not unlawful; it is an important element of the free-market system. The opportunity to charge monopoly prices—at least for a short period—is what attracts 'business acumen' in the first place; it induces risk taking that produces innovation and economic growth. To safeguard the incentive to innovate, the possession of monopoly power will not be found unlawful unless it is accompanied by an element of anticompetitive conduct." *Verizon Communications, Inc. v. Law Offices of Curtis V. Trinko, LLP* 540 U.S. 398 (2004).

<sup>141</sup> "The existence of a dominant position is not in itself against the rules of competition. Consumers can suffer from a dominant company exploiting this position, the most likely way being through prices higher than would be if the market were subject to effective competition. However, the Commission in its decision making practice does not normally control or condemn the high level of prices as such. Rather, it examines the behaviour used by the dominant company designed to preserve its dominance." European Commission, *XXII<sup>th</sup> Annual Report on Competition Policy* (1994) at §207; See also European Commission, *XXVII<sup>th</sup> Annual Report on Competition Policy* (1997) at §77.

<sup>142</sup> See Robert O'Donoghue & A. Jorge Padilla, *supra* note 137, at p.605.

<sup>143</sup> See *United Brands*, *supra* note 123, §250.

<sup>144</sup> Director-General Philip Lowe, DG COMP, summed up the practical and conceptual difficulties of pursuing excessive pricing cases in a speech delivered at Fordham University: "On exploitative abuses, there is widespread criticism, some of which we concur with. For example, it is extremely difficult to measure what constitutes an unfair or excessive price. And there are many who say, 'Well, exploitative practices are self-correcting because the exercise of market power to raise prices will normally attract new entrants'. We do not disagree with that either, except that the intervention which is going to be corrective must be, in our view, timely and relevant to the competition problem which is created by the original exploitation". Speech delivered at the 30<sup>th</sup> Fordham Antitrust Conference in New York, 23 October 2003, available at [http://europa.eu.int/comm/competition/speeches/index\\_2003.html](http://europa.eu.int/comm/competition/speeches/index_2003.html)



#### D. Case-law of the ECJ and Decisional Practice of the Commission on Excessive Pricing

The Commission has been understandably cautious in reaching findings of excessive pricing, and such cases have therefore been few and far between. They were generally decided several decades ago, and most arose out of policy justifications related to the creation of the EU's internal market<sup>145</sup> or the protection of final consumers.<sup>146</sup> These policy reasons prompted the Commission to pursue cases aimed at preventing companies from taking advantage of trade barriers within the internal market, "partitioning the relevant market"<sup>147</sup> or charging higher prices in the Member States in which the dominant undertaking was "sheltered from effective competition."<sup>148</sup> Under these circumstances, the Commission held for instance that excessive prices infringed Article 82 EC where they had the effect of "curbing parallel imports by neutralizing the possibly more favourable level of prices applying in other sales areas in the community."<sup>149</sup> Another strand of cases of excessive pricing concerned regulated markets such as telecommunications controlled by former monopolies and markets where firms enjoyed special or exclusive rights conferred by the State which insulated them from competition. In such cases, it was the lack of competition in significant portions of the markets occasioned by the State's past interference and the resulting incumbency advantages enjoyed by the former monopolies which justified regulatory intervention to curb prices.<sup>150</sup>

In *United Brands*, the Commission imposed a fine on United Brand for charging excessive prices on the sale of bananas in several EU Member states. It compared the prices charged by the dominant firm with those of unbranded bananas and of competitors' bananas, and was greatly concerned with the fact that different prices were being charged in various Member States. On appeal, the ECJ annulled the Commission's decision insofar as it concerned excessive pricing. It nevertheless confirmed that it would be abusive for a dominant firm to charge prices bearing no reasonable relation to the product's economic value. The ECJ suggested that a two-stage test would be required to assess whether prices were excessive. First, a comparison between the selling price and production costs would be used to reveal the profit margin. Although the court did not suggest the level at which the profit would become excessive, it found that the Commission had failed to examine United Brands' cost structure. Second, prices charged by the dominant firm would be compared to those of competitors' products. The ECJ also noted that many ways could be devised to determine whether a price was unfair.

<sup>145</sup> See *United Brands*, supra note 123; ECJ, 226/84; *British Leyland v Commission* [1986] ECR 3263.

<sup>146</sup> See ECJ, 26/75, *General Motors v Commission* [1975] ECR 1367.

<sup>147</sup> See *United Brands*, supra note 123, § 236; See also the ECJ's ruling dismissing the action brought by *British Leyland* against a Commission decision imposing a fine on it for charging excessive amounts for the issue of certificates of conformity in respect of left-hand-drive cars imported into the UK from other EU Member states. See *British Leyland v Commission*, supra note 145.

<sup>148</sup> *Id.*

<sup>149</sup> See *General Motors*, supra note 146, § 12.

<sup>150</sup> See ECJ, 30/87, *Bodson v S.A. Pompes Funèbres des Régions Libérées*, [1988] ECR 2479, Commission Decision of 25 July 2001, *Deutsche Post II*, O.J. (2001) L 331/40,

Subsequent Commission decisions and court cases applied and confirmed the test specified by the ECJ in *United Brands*. From these cases, four principal benchmarks emerge for assessing whether prices are excessive: (i) price-cost comparisons; (ii) price comparisons across markets or competitors; (iii) geographic price-comparisons; and (iv) comparisons over time.<sup>151</sup>

The *Port of Helsingborg* case - the most recent decision dealing with allegations of excessive pricing - suggests that the Commission will apply a demanding standard when assessing allegations that prices are excessive. The Commission applied the two-stage test used in *United Brands* and held that “even if it were to be assumed that the profit margin [...] is high (or even ‘excessive’), this would not be sufficient to conclude that the price charged bears no reasonable relation to the economic value of the services provided. The Commission would have to proceed to the second question as set out by the Court in *United Brands*, in order to determine whether the prices charged [...] are unfair.”<sup>152</sup> In the assessment it conducted, the Commission found insuperable difficulties in establishing valid benchmarks and insufficient evidence to conclude that the prices charged were excessive. It therefore rejected the complaint at the origin of the case.

#### **E. Excessive Pricing in the Standard-Setting Context**

The role of U.S. antitrust law in the standard-setting context has been limited to dealing with issues arising from the implementation and alleged manipulation of SSOs IP policies and rules. Under U.S. law, an increase in the value of IPR resulting from their inclusion in a standard does not raise antitrust concerns in the absence of fraud or manipulation of the standard-setting process.<sup>153</sup> From a theoretical standpoint, things are different under EC competition law due to the fact that excessive pricing can constitute *per se* an abuse of a dominant position.

Nevertheless, in addition to the general position in favour of a restrained application of Article 82 EC to regulate prices, significant arguments militate against such regulation in the context of licensing of IPR. As seen above, IPR do not necessarily confer any significant degree of market power on their holders, as adequate substitutes may exist and therefore constrain the holder in the terms on which its rights will be exploited or licensed.<sup>154</sup> The same holds true for IPR incorporated into a standard.

<sup>151</sup> See Robert O'Donoghue & A. Jorge Padilla, *supra* note 137, p. 613.

<sup>152</sup> Case COMP/A.36.568/D3 – Scandlines Sverige AB v Port of Helsingborg [2003], not yet published, § 158, available at: [http://europa.eu.int/comm/competition/antitrust/cases/index/by\\_nr\\_73.html#i36\\_568](http://europa.eu.int/comm/competition/antitrust/cases/index/by_nr_73.html#i36_568)

<sup>153</sup> “Adoption of a standard can confer a substantial windfall gain on non-participant patent holders, who (just like participant patent holders) may be able to extract higher royalties for the use of their patents than they would have been able to do absent the standard. But we know of no one who suggests that such conduct is an antitrust violation. Consequently, the ‘evil’ that the antitrust law seeks to address in these contexts is the manipulation that led to the enhanced value of the patent, not the fact that a patent reads on a standard or the enhanced value *per se*.” Teece & Sherry, *supra* note 11, p.27.

<sup>154</sup> The Commission's Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses states for instance that “intellectual property rights do not as such confer dominance on the holder. The impact of intellectual property rights on expansion and entry depends on the nature and actual strength of the intellectual property right held by the allegedly dominant undertaking.” See Discussion paper, *supra* at note 124, §13. This is in line with current principles for the application of US antitrust rules. In a recent

Where IPR do confer market power, however, competition authorities must endeavour not to impose restrictions on the IPR holder which would negate the very justification for creating such rights, and which undermine the balance struck by the legislation under which they arise.<sup>155</sup>

Under EC competition law, the need for a cautious approach to the application of Article 82 EC in the context of IPR has thus far been most widely recognised in relation to refusals to license. The ECJ's case law dealing with this issue has repeatedly emphasised that "exceptional circumstances" must be present before a compulsory licence can be granted.<sup>156</sup> Economists have generally framed the debate concerning compulsory licensing around a trade-off between *ex ante* and *ex post* efficiency. On the one hand, mandating a dominant firm holding an IPR to share such right with one or several competitors will stimulate competition in downstream markets, thus promoting *ex post* allocative efficiency. On the other hand, mandatory sharing may reduce the return that the IPR holder will obtain and thus decrease its *ex ante* incentives to invest in innovation and compete dynamically.<sup>157</sup> The economic and policy assumptions underlying this cautious approach to compulsory licensing are as relevant, if not more so, to the subject of excessive pricing of IPR and suggest that increased restraint should be exercised by competition authorities in their analysis of licensing terms. It is against this backdrop that the advisability of pursuing an excessive pricing case in the context of IPR must be assessed.

The seminal excessive pricing test set out in *United Brands* remains the legal standard for determining excessive pricing in the standard-setting context. Neither the Commission's decisional practice nor the ECJ's case law provide additional guidance on suitable benchmarks for determining whether royalties charged by an owner of essential IPR are unfair. Moreover, the intricacy of ascertaining the "correct" or "competitive" price for a given product is exacerbated in the case of intangible goods such as IPR. Pricing IPR, and IPR essential to a standard in particular, is a notoriously thorny

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judgment, the US Supreme Court rejected the notion that patents carry a presumption of market power. See *Illinois Tool Works Inc. v. Independent Ink, Inc.*, No. 04-1329.

<sup>155</sup> As recently noted by the DOJ's Assistant Attorney General Thomas Barnett, "[...] if the government is too willing to step in as a regulator, rivals will devote their resources to legal challenges rather than business innovation. Thus is entirely rational from an individual rival's perspective: seeking government help to grab a share of your competitor's profit is likely to be low cost and low risk, whereas innovating on your own is a risky, expensive proposition. But it is entirely irrational as a matter of antitrust policy to encourage such efforts. Rather, rivals should be encouraged to innovate on their own – to engage in leapfrog or Schumpeterian competition. New innovation expands the pie for rivals and consumers alike." *Supra* note 114, p. 13.

<sup>156</sup> For instance the ECJ's ruling in *IMS* confirmed that while the refusal by the owner of an IPR to grant a licence cannot in itself constitute abuse of a dominant position, the exercise of the exclusive right conferred on the owner under IP law may, "in exceptional circumstances", involve abusive conduct. See ECJ, C-418/01, *IMS v. NDC* [2004] ECR I-5039, §34 et seq. See also ECJ, C-241/91 P and C-242/91 P, *Magill*, [1995] ECR I-743;

<sup>157</sup> See generally Damien Geradin, "Limiting the Scope of Article 82 of the EC Treaty: What can the EU Learn from the US Supreme Court's Judgment in *Trinko* in the wake of *Microsoft*, *IMS*, and *Deutsche Telekom*", *Common Market Law Review*, December 2005, p. 19, available at <http://ssrn.com/abstract=617263>

undertaking.<sup>158</sup> Further, as noted by Dolmans, none of the benchmarks traditionally relied upon in competition law assessments seem particularly appropriate.<sup>159</sup>

First, cost-based methods are ill-suited to be employed as benchmarks for IPR. They entail measuring the effort and expenditure that went into an invention and adding a margin of profit to determine the correct price.<sup>160</sup> As such, they ignore the inspiration, the flashes of creative brilliance from which every invention springs.<sup>161</sup> Cost-based approaches also fail to account for the risk inherent in R&D, which is particularly significant in high-technology sectors and which must be adequately remunerated under penalty of thwarting the incentive to innovate. Moreover, historical costs are difficult to determine and apportion when IPR are licensed in portfolios. A further difficulty relates to the need to account for the costs of failed projects.<sup>162</sup> Only a limited number of research projects indeed lead to a marketable invention. Finally, price-cost comparisons of IPR must take into consideration the significant transaction costs incurred in IP licensing.<sup>163</sup>

Second, comparing the prices charged by an IPR owner either with prices set by the same IPR in a different technology market or with prices set by competitors is a complex task. Suitable comparators will usually be difficult to identify given that IPR are by definition unique.<sup>164</sup> In other words, finding licensed IPR that are genuinely comparable is difficult at best, and often impossible. Moreover, comparisons with licensing terms offered by an owner for other IPR may be of limited significance given that establishing such terms is, at its heart, a business negotiation between IPR owner and prospective licensee. It encompasses a multitude of variables difficult to quantify and all of which are of appreciable value.<sup>165</sup>

Third, finding suitable comparators for IPR essential to a standard presents the additional difficulty that such essential IPR are by definition complementary, as they all need to be used together to implement a standard. Complementary patents are not substitutes and therefore not comparable.

<sup>158</sup> For surveys of the theoretical literature, see Morton I. Kamien, "Patent Licensing," in *Handbook of Game Theory with Economic Applications*, pp. 331-54, Robert J. Aumann and Sergio Hart, Eds., vol. 1, Amsterdam: North-Holland, 1992. See also Suzanne Scotchmer, "Licensing, Joint Ventures, and Competition Policy," in *Innovation and Incentives*, The MIT Press, 2004.

<sup>159</sup> See Dolmans, *supra* note 48, 201.

<sup>160</sup> See discussion in F. Russell Denton and Paul Heald, "Random Walks, Non-Cooperative Games, and the Complex Mathematics of Patent Pricing," (2003) 55 *Rutgers Law Review* 1183.

<sup>161</sup> See Dolmans, *supra* note 48, 202.

<sup>162</sup> See Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements, (2004) OJ C 101/2, at § 8.

<sup>163</sup> Swanson & Baumol, *supra* note 36, at 22 ("The licensing of IP, in addition to involving costs of negotiation, contracting, accounting, monitoring and auditing, also frequently involves the costs of instruction, training and 24-hour assistance")

<sup>164</sup> See Dolmans, *supra* note 48, 202.

<sup>165</sup> The variables include *inter alia* cross-licensing provisions, exhaustion of rights, upfront fees, jurisdiction, venue, assignability, scope of licence (e.g. products, territory, have made rights, etc.), audit requirements, payment terms and scheduling, currency choice etc

Given the complexity inherent in settling on an appropriate benchmark among those identified in the Commission's and the ECJ's decisional practice, it is worth considering a range of more or less practical methods that have been used to provide proxies for a reasonable royalty rate to the exclusion of other significant factors of consideration.

Courts, which are often asked to make determinations patent infringement damages referenced to a reasonable royalty determination, do not necessarily rely on any one method. They frequently give great weight to the results of a large number of bilateral negotiations that result in essentially the same terms and conditions with respect to a given patent or patent portfolio.<sup>166</sup> The existence of licensing agreements entered into following arms-length negotiations between IPR holder and licensee is arguably the best indicator of a reasonable royalty rate. U.S. courts have held, for instance, that "where an established royalty rate for the patented inventions is shown to exist, the rate will usually be adopted as the best measure of reasonable and entire compensation".<sup>167</sup> Where prior licences constitute an "established royalty," then the established royalty will set a minimum recovery by the patent owner. In order to be considered "established", royalties must first meet five criteria: (1) they must be paid or secured before infringement began; (2) they must be paid by a sufficient number of persons to indicate reasonableness of the rate; (3) they must be uniform in amount; (4) they must not have been paid under threat of suit or in settlement of litigation; and (5) they must be for comparable rights or activity under the patent.<sup>168</sup>

Perhaps due to the difficulties in negotiating acceptable terms for a patent licence, a significant number of patent holders rely instead on general rules of thumb.<sup>169</sup> As a Harvard Business School case study observes, "[e]ven organizations that are aware of their intellectual assets tend to choose royalty rates based on a 'rule of thumb' rather than rates based on quantitative metrics or analysis of profitability."<sup>170</sup> A common rule calls for 5% of sales revenues or 25% of operating profit margin to be paid to the patent

<sup>166</sup> For instance, in the seminal *Georgia-Pacific* case, a U.S. Circuit Court employed a multifactor test that took into account licence fees for similar patents as benchmarks, measures of the nature and scope of the patent, consideration of the next best alternative to the patent and any cost savings from using it as opposed to older modes or devices, the opinion testimony of qualified experts, consideration of the particular benefits to the licensee and the commercial relationship between Georgia-Pacific and the licensees. See *Georgia-Pacific Corp. v. U.S. Plywood-Champion Papers Inc.* 446 F.2d 295 (2<sup>nd</sup> Cir. 1971); *Interactive Pictures Corp. v. Infinite Pictures, Inc.*, 274 F.3d 1371 (Fed. Cir. 2001); *Radio Steel & Mfg. Co v. MTD Prods., Inc.*, 788 F.2d 1554 (Fed.Cir. 1986); *Lindemann Maschinenfabrik GmbH v. Am. Hoist & Derrick Co.*, 895 F.2d 1403, (Fed. Cir. 1990).

<sup>167</sup> See *Hanson v. Alpine Valley Ski Area, Inc.*, 718 F.2d 1075, 1078 (Fed. Cir. 1983).

<sup>168</sup> See *Mobil Oil Corp. v. Amoco Chemicals Corp.*, 915 F.Supp. 1342 (D. Del. 1994).

<sup>169</sup> As a Harvard Business School case study observes, "[e]ven organizations that are aware of their intellectual assets tend to choose royalty rates based on a 'rule of thumb' rather than rates based on quantitative metrics or analysis of profitability." *Intellectual Asset Valuation*, Harvard Business School, Case Study N9-801-192, p. 4. The case study was based on a paper originally written by Gavin Clarkson, Olin Fellow for Law, Economics, and Business at Harvard Law School.

<sup>170</sup> *Intellectual Asset Valuation*, Harvard Business School, Case Study N9-801-192, p. 4. The case study was based on a paper originally written by Gavin Clarkson, Olin Fellow for Law, Economics, and Business at Harvard Law School.



holder.<sup>171</sup> This 5% rate does not refer to a maximum cumulative royalty rate, but to a possible rate for a patent portfolio owned by a single entity.

All the methods referred are nevertheless far from yielding optimal or even generally acceptable results. As has been noted by other, the imprecise nature of the legal test for excessive prices simply reflects the fundamental problem that there is no workable definition of a competitive price, in particular where IPR are to be priced.<sup>172</sup> In sum, it can be argued that the difficulty, complexity and potential for error with significant costs inherent to any attempt to determine a competitive price is compounded where IPR are at stake. This leads us to conclude that the well-founded prudence and restraint which competition authorities and courts have shown in pursuing cases of excessive pricing should be increased where the prices under scrutiny relate to the level of royalties charged by holders of essential patents for a technology embedded in a standard.<sup>173</sup>

#### **F. Article 82 EC Reform and Commission Policy Pronouncements on Exploitative Abuse**

The European Commission launched in 2005 a reflection on the legal and economic soundness of the principles underlying its enforcement of Article 82 EC. The first tangible element of this reflection was the publication of a “Discussion paper on the application of Article 82 of the Treaty to exclusionary abuses” proposing an analytical approach to be used by the Commission in its assessment of such abuses.<sup>174</sup> The focus on exclusionary behaviour appears to reflect Commissioner Kroes’ declarations that the European Commission’s enforcement policy should give priority to exclusionary abuses.<sup>175</sup> The Commission’s Discussion paper generated numerous comments submitted by academics and practitioners and was followed by a public debate held in June 2006. It should be read in conjunction with a Report prepared by the Economic Advisory Group on Competition Policy (EAGCP), an independent group of experts commissioned by Commission, entitled “An economic approach to Article 82”.<sup>176</sup> The main thrust of the Report is a call for an economics-based approach to the application of Article 82 EC, implying that the assessment of each specific case should not be

<sup>171</sup> See Lauren Johnston and Richard T. Rapp, *Modern Methods for the Valuation of Intellectual Property*, 532 PLI/Pat 817, pp. 817-42 (1998).

<sup>172</sup> Padilla & O’Donoghue, *supra* note 137, at 626.

<sup>173</sup> This potential for error and the resulting need for caution are encapsulated by the DOJ’s Deputy Assistant Attorney General Gerald Masoudi: “In the United States, we have stated our antitrust priorities as an explicit hierarchy. At the top of this hierarchy is enforcement against cartels. As our second priority, we review mergers [...]. And third, we analyze nonmerger civil cases - which include unilateral conduct - in a cautious and objective manner, mindful that it is often difficult to tell the difference between anticompetitive conduct and good, hard competition. It is worth noting that most IP-related practices, such as IP licensing, fall into this third category. As the hierarchy moves from per se conduct to nonmerger civil actions, it moves from the least chance of false positive to the greatest, and our level of caution increases accordingly” Masoudi, *supra* note 25.

<sup>174</sup> See *supra* note 124.

<sup>175</sup> See Commissioner Neelie Kroes, “Preliminary Thoughts on Policy Review of Article 82”, speech delivered before the Fordham Corporate Law Institute, New York, 23<sup>rd</sup> September 2005.

<sup>176</sup> See Report by the EAGCP, “An economic approach to Article 82”, July 2005, available at [http://ec.europa.eu/comm/competition/publications/studies/eagcp\\_july\\_21\\_05.pdf](http://ec.europa.eu/comm/competition/publications/studies/eagcp_july_21_05.pdf)

undertaken on the basis of the form that a particular business practice takes but rather should be based on the assessment of the anti-competitive effects generated by business behaviour.

Although the Commission's Discussion paper does not deal with exploitative behaviour – which the Commission intends to address at a later stage of its reflection on reform of Article 82 EC – it contains a number of interesting general policy pronouncements. Those concerning the application of Article 82 EC to innovative industries are particularly relevant to the application of the excessive pricing doctrine in the standard-setting context. Echoing similar recommendations made by the EAGCP,<sup>177</sup> the Discussion paper recognises that IPR are often the result of substantial investments entailing significant risks and that in order to maintain incentives to invest and innovate the dominant firm must not be unduly restricted in the exploitation of valuable results of the investment.<sup>178</sup> It is hoped that the announced reflection on the assumptions underlying the Commission's analytical approach to exploitation will build on the sound pronouncements contained in its current Guidelines on the application of the TTBE:

"It must be kept in mind that the creation of intellectual property rights often entails substantial investment and that it is often a risky endeavour. In order not to reduce dynamic competition and to maintain the incentive to innovate, the innovator must not be unduly restricted in the exploitation of intellectual property rights that turn out to be valuable. For these reasons the innovator should normally be free to seek compensation for successful projects that is sufficient to maintain investment incentives, taking failed projects into account. Technology licensing may also require the licensee to make significant sunk investments in the licensed technology and production assets necessary to exploit it. Article 81 cannot be applied without considering such *ex ante* investments made by the parties and the risks relating thereto. The risk facing the parties and the sunk investment that must be committed may thus lead to the agreement falling outside Article 81(1) or fulfilling the conditions of Article 81(3), as the case may be, for the period of time required to recoup the investment."<sup>179</sup>

In our opinion, determining the level of compensation sufficient to maintain investment incentives of IPR' owners is an undertaking that requires a complex balancing and is best left to the interaction of market forces.

#### **G. Is There a Role for FRAND under Article 82 EC?**

It has been argued that FRAND commitments have a prominent role to play under Article 82 EC. One claim is that the obligations imposed on an IPR owner by FRAND and by Article 82 EC are similar if not altogether identical, and the breach of the former by a dominant company would necessarily imply an infringement of the latter.<sup>180</sup> Others

<sup>177</sup> According to the EAGCP, the Commission should be particularly reluctant to interfere where dominance stems from the existence of IPR. Given that IPR have been granted by the state in order to create market power and to give innovators a reward for their efforts, it would be inconsistent for the state, i.e. competition authorities, to interfere with these rights *ex post* and take market power away. See Report by the EAGCP, *supra* note 176, at 44.

<sup>178</sup> See Discussion paper, *supra* note 124, §235

<sup>179</sup> See *supra* note 126, §8.

<sup>180</sup> See John Temple Lang, "Abuse under Article 82 EC – Fundamental Issues and Standards Cases", paper presented at the 2006 St Gallen conference.

have asserted that competition law imposes a duty on IPR owners to license their IPR essential to a standard on FRAND terms.<sup>181</sup>

In our view, such claims are patently untenable and will therefore be addressed only briefly. They reflect either a misconstruction of the meaning of FRAND, as used in the standards context, or a misconception of Article 82 EC.

As seen above, specific licensing terms can be deemed to comply with the FRAND commitment if they are the result of market-driven, arms-length negotiations between IPR owner and licensee. FRAND is a matter of contract law and as such its interpretation and enforcement are to be carried out by the courts on a case-by-case basis that takes into account the situation of specific licensor and standard implementer. EC competition law does not and should not require that industry standards be made available on FRAND terms. If the FRAND commitment mirrors the obligations to which a dominant undertaking is in any event subject under Article 82 EC, there is no need to have recourse to it. If, on the other hand, the FRAND commitment goes beyond the requirements imposed under Article 82 EC, it has no role to play in the application of this provision of EC competition law.

In sum, FRAND commitments are not an adequate, relevant or useful instrument for the application of Article 82 EC. In our view, arguments to the contrary must be viewed as reflecting their authors' stance on what the law should be and (importantly) not what the law actually is.

#### **H. Patent Ambush and Article 82 EC**

The final topic we would like to address briefly is that of "patent ambush" under Article 82 EC. Patent ambush occurs where an IPR owner wilfully and knowingly fails to meet its duty to disclose to a SSO ownership of IPR which are subsequently incorporated in the standard under adoption. The fundamentally anticompetitive element in a patent ambush is the deception used by the holder of IPR to secure inclusion of its patents in the standard. As seen above, the issue has been dealt with at length by U.S. commentators in the wake of several high-profile cases, most notably *Rambus*.<sup>182</sup> Patent ambushes can give rise to claims under a variety of legal provisions, such as those concerning fraudulent behaviour. In U.S. antitrust law, they can also fall under the prohibition of anticompetitive attempted monopolisation.

<sup>181</sup> See Glader & Larsen, *supra* note 131.

<sup>182</sup> The well-documented *Rambus* saga provides a clear example of the difficulties in assessing whether a firm has been involved in patent ambush. For a detailed recapitulation of the vicissitudes of the case and its protracted procedural history, see the Federal Trade Commission's (FTC) Opinion finding that by concealing its ownership of certain patents, Rambus persuaded the JEDEC, a SSO, to adopt two standards for computer memory (SDRAM and DDR SDRAM) incorporating those patents which, in turn, significantly contributed to Rambus's unlawful acquisition of monopoly power. See *In the Matter of Rambus, Inc.*, Docket No. 9302, available at <http://www.ftc.gov/os/adjpro/d9302/060802commissionopinion.pdf>.

The situation is different under EC competition law. By contrast to the provisions of the Sherman Act, Article 82 EC does not censure the acquisition or attempted acquisition of monopoly power, i.e. dominance, through anticompetitive means. Nor does it censure the mere possession of a dominant position. It only proscribes anticompetitive behaviour by firms that have already attained such a position of dominance. The implications for the application of Article 82 EC to patent ambushes are therefore clear. If the IPR owner only obtained its dominant position in the market for the standardised technology *ex post* the deceptive behaviour, it would be difficult to make a case for the applicability of Article 82 EC. For Article 82 EC to apply, it is necessary that the IPR owner enjoy a dominant position *ex ante*.

One way to circumvent this apparently insurmountable conceptual difficulty would be to argue that the owner already enjoyed a dominant position, which it abused through the patent ambush, in a market for its IPR. This approach would pose at least three significant problems. First, given that IPR do not necessarily confer dominance on their holders, it would require a narrow definition of the relevant technology market in which dominance would be found. And if dominance could be found to exist *ex ante* the standard being adopted, it is not easy to see how the ambush would have strengthened the IPR owner's dominance. Second, it is unclear how relevant markets would be defined, i.e. would a market for the standardised technology and a distinct market for the owner's IPR be found to exist? Third, it would imply doing away with any notion of causality in the application of Article 82 EC. In such a case, the abuse i.e. the acquisition or strengthening of monopoly power in the market for the standardised technology would not be have been linked to the existence of a dominant position in the same or in a distinct relevant market.

In our opinion, these conceptual and practical obstacles do not imply that EC competition law has no role to play in averting patent ambushes. This role should, however, be a preventive one and is best achieved through the reinforcement of SSOs' rules on disclosure of essential IPR. Recent amendments to ETSI's IP policy introduced following an investigation carried out by the Commission under Article 81 EC provide an example of this preventive approach.<sup>183</sup> The changes strengthened the requirement for early disclosure of essential IPR during ETSI's standard-setting activities and should therefore contribute to minimising the risk of patent ambush.

## VIII. CONCLUSION

Throughout this paper we have shown that the FRAND licensing regime underlying the IPR licensing policies of most SSOs has performed well by allowing potential licensors and licensees to negotiate mutually acceptable agreements that take account of the objectives and needs of each party. In recent years, this system has, however, been under attack by firms wishing to pay lower levels of royalties to innovating firms. We show that such attacks are often based on theories whose dire

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<sup>183</sup> See the European Commission's press release IP/05/1565 of 12 December 2005, available at <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/05/1565&format=HTML&aged=1&language=EN&guiLanguage=en>.

predictions have not been verified in practice. Moreover, the remedies proposed by those decrying the alleged inadequacies of the FRAND regime raise serious conceptual and practical difficulties, and if applied would seriously harm pure licensors' incentives to innovate.

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